This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

LANE MEDICAL LIBRARY STANFORD
2 45 0270 0934

LIBRARY

OF

PRACTICAL MEDICINE.

PUBLISHED BY ORDER OF THE

MASSACHUSETTS MEDICAL SOCIETY,

FOR THE USE OF ITS FELLOWS.

VOLUME XXV.

CONTAINING

PRIZE DISSERTATIONS FOR 1868,

BY

ROBERT T. EDES, M.D.,
JAMES F. HIBBERD, M.D., AND
JOHN SPARE, M.D.

BOSTON:
DAVID CLAPP & SON.
MED. AND SURG. JOURNAL OFFICE.
1868.

LANE
MEDICAL LIBRARY
SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
1885
LEVI COOPER LANE FUND

LIBRARY

OF

PRACTICAL MEDICINE.

PUBLISHED BY ORDER OF THE

MASSACHUSETTS MEDICAL SOCIETY.

FOR THE USE OF ITS FELLOWS.

VOLUME XXV.

CONTAINING

PRIZE DISSERTATIONS FOR 1868,

BY

ROBERT T. EDES, M.D.,
JAMES F. HIBBERD, M.D., AND
JOHN SPARE, M.D.

LANE MEDICAL LIBRARY
SAN FRANCISCO

BOSTON:
DAVID CLAPP & SON,
MED. AND SURG. JOURNAL OFFICE.
1868.

DISSERTATIONS

ON

THE PART PERFORMED BY NATURE AND TIME IN THE CURE OF DISEASES;

FOR WHICH PRIZES WERE AWARDED

BY THE

Massachusetts Medical Society

TO

ROBERT T. EDES, M.D., JAMES F. HIBBERD, M.D., AND
JOHN SPARE, M.D.

1868.

B

R 108
D61
1868

PREFACE.

The following Dissertations were sent to the "Prize Committee" appointed by the Massachusetts Medical Society, in answer to the Question proposed for 1868:—"*The Part performed by Nature and Time in the Cure of Diseases.*"

For this prize the sum of one hundred dollars had been placed at the disposal of the Society by the liberality of one of its members, who afterwards learning that more dissertations than one were thought worthy of the premium, generously offered to furnish two other prizes of like amount, should the Committee consider other dissertations offered to be worthy of such distinction.

The Committee then reported that they had received a number of essays, three of which they adjudged worthy of prizes, severally indicated by the three following mottoes:—

> "*A true announcement of the law of Creation, if a man were found worthy to declare it, would carry Art up into the kingdom of Nature, and destroy its separate and contrasted existence.*"

> "*Nature dominant—Art ancillary.*"

> "*Ingenuas didicisse fideliter Artes*
> *Emollit mores nec sinit esse feros.*"

At the Annual Meeting of the Society, June 3d, 1868, the Secretary of the Society, in open meeting, broke the sealed packets, and the authors were found to be Robert T. Edes, M.D., of Hingham, Mass.; JAMES F. HIBBERD, M.D., of Richmond, Indiana, and JOHN SPARE, M.D., of New Bedford, Mass.

The Dissertations were then, by vote of the Society, referred to the Committee on Publications. This Committee, while believing that the publication of the Dissertations would be of great service to the cause of Rational Medicine, felt constrained to forego so desirable an object on account of want of funds at their command for the purpose, whereupon the same liberal donor* offered to supply the deficiency—amounting, as it proved, to two thirds the expense of publication.

Thus each member of the Society is furnished with a volume on a subject of great practical importance; and, in view of this and other circumstances attending the publication, the Committee have caused it to be issued as the twenty-fifth volume of the LIBRARY OF PRACTICAL MEDICINE, published by the Society.

In accordance with the previous custom in such cases, the Committee add that—*It is to be understood that the Massachusetts Medical Society is not to be held responsible for the opinions or sentiments expressed in these Prize Essays.*

---

* Announced at the Society's Dinner to be Dr. JACOB BIGELOW, of Boston.

DR. EDES'S

DISSERTATION.

announcement of the Law of Creation, if a man were
d worthy to declare it, would carry Art up into the
dom of Nature, and destroy its separate and contrasted
tence." EMERSON.

DR. EDES'S

DISSERTATION.

> "*A true announcement of the Law of Creation, if a man were found worthy to declare it, would carry Art up into the kingdom of Nature, and destroy its separate and contrasted existence.*"
>
> EMERSON.

DISSERTATION.

THAT the part of nature and time in the cure of certain diseases is a very large one, is a truth which has long been known to, and practically made use of by the most enlightened physicians, and the number of the diseases where it is admitted that nature's assistance is mainly to be relied upon, has in late years much increased. A popular prejudice to the contrary has so clearly harmonized with that feeling of which all men have more or less, namely, the wish to be or to seem of use and importance, that it has caused this truth to be somewhat neglected, and by many entirely lost sight of.

The more philosophical spirit of modern inquiry, which leads us to look at things as they are, and not as we would have them to be, is causing scientific men to diminish their estimate of the physician's power over the natural processes of disease, even while directing, and that too with not insignificant success attained and more hoped for, systematic and intelligent efforts to increase that power. The medical profession of the present day, though possessing far greater knowledge of physiological and pathological science than ever before, and far greater resources in the arts of medicine and surgery, must yet be content to acknowledge the somewhat narrow limits of its curative powers, and while really doing much more, can honestly claim as its own work much less than earlier and less instructed generations thought they had a right to do.

The ways in which this fact has been proved and is still forced upon our attention are various.

The general advance of physiology and pathology consequent upon increased opportunities for post-mortem examinations, the improvement of the microscope, the increased knowledge of the collateral sciences, especially chemistry, and the greater facilities for diffusing information of every kind, thus practically enlarging the experience of every reading man, show most clearly over how many of nature's processes we have but little control.

Clinical experience, however, supplies the strong and only reliable argument in this as in every department of practical medicine.

Men so unfortunate as not to be able to obtain the services of a physician have not always died. The crews of ships unprovided with medicine chests have come safe and sound into port, and now and then some obstinate patient refuses the saving draught and recovers without assistance. "You have a physician," said the king to Molière dining with him; "what does he do to you"? "Sire," answered Molière, "we talk together; he orders me medicines; I take none of them, and I get well." The fashionable quackery of the day has furnished and still furnishes wholesale evidence, less free from contamination now, however, than in the days, long since departed, of its pristine purity.

Another class of evidence, less direct to be sure, but, considering the sources of each, quite as reliable, and if carefully sifted nearly as conclusive, is that derived from the results of active treatment.

So many diseases have been subjected to such opposite plans of treatment that these mutually eliminate each other's errors, and show nearly what nature unaided can do. Such evidence requires to be carefully examined in order to make sure that we are dealing with similar conditions; but this done, there is often but one interpretation to be put upon such equal results from such different modes of treatment, and that not particularly flattering to our discrimination.

These classes of cases furnished until lately our principal means of information on the natural history of disease, but the more general acceptance of rational views has prompted their confirmation by direct and careful experiment.

But before we go further it will be well to consider what we shall, for our purpose, take nature to mean.

All the surroundings of a sick man, the air he breathes, the food he eats, his clothes, his bed, as well as his medicine or dressings, and his constitution, hereditary or acquired, have their influence on the result of the disease; and yet, no matter what the other influences brought to bear, he would be spoken of in common parlance as left to nature, if he took no medicine, or were under no definite plan of treatment; yet if a fever patient how different his condition, whether his excreta be allowed to remain or be immediately removed, and his apartment ventilated; or if he be affected with phthisis, what air he breathe, or what food he eat; or if a surgical case, whether his bed be good or bad, or whether he keep still or walk about.

Abundant instances* may be found to show how very marked and favorable an influence ventilation, even to the extent of treating patients in a tent, has over the course of typhoid and typhus; yet, to the minds of the uninstructed at least, the hospital would seem as natural an abode as the tent.

---

* Flint's Practice, p. 811. Der Milatärarzt, No. 25, s. 339.

It is manifest that these changing elements must be excluded, and we must consider nature to mean the pathological character and tendency of the special disease, combined with the constitution of a given patient, and, as far as possible, without regard to any external circumstances.

Suppose the course of any disease to be represented by a curve, of whose function the chief independent variables are the force of the disease and the force of the patient, and other circumstances come in as co-efficients to influence within certain limits the result. The form of the function may be such (it is not always so simple as $x-y$)* that either variable may almost wholly determine its value, whether it shall at any point become equal to zero. It is the form of this function, without regard to the co-efficients of external circumstances, food, air and medicine, which we may consider to be nature. Each disease has its special function, which is to be determined by eliminating, so far as we can, the disturbing and accidental elements. Or, to use another figure: the disease may be the seed, and the surroundings of the patient the soil. It is the inherent nature of the seed which determines the genus, species and variety of the future plant. The soil may be good or bad, and the plant may be vigorous or weakly, but its kind is determined before it is planted, and it will bear fruit at its appointed time, with some regard, it is true, to a greater or less supply of sun and light, but with much more to its own habit. The destiny of the plant, so far as determined by the seed and not by the soil, may represent nature in disease.

Nature, thus represented, is, to be sure, an abstraction; for as a curve cannot be drawn without definite co-efficients, and the seed will not germinate unless placed in some particular soil, so the disease cannot actually exist unless it is in some definite human body under certain definite conditions. Yet it is with this abstraction that we have to do when we speak of general tendencies and not of the special cases.

---

* Dr. Holmes uses, in "Currents and Counter-Currents," a somewhat similar illustration to represent the depressing effects of some active remedies.

Practically these disturbing elements which we here seek to eliminate are of the highest importance.

It was once considered that disease was an entity, a power of evil, against which the physician was to contend: according to some, without regard to nature; according to others, with her assistance. However sound a practice the idea of a distinct vis medicatrix working on the side of the physician may lead to, it is almost as false pathologically as the other. The vis medicatrix, unless it mean the original power of resistance of the constitution, is not separate from the disease but is a part of it, and nature cures because cure is the necessary consequence of what has gone before, and not because she has succeeded in counteracting morbid influences.

The cause of the disease may or may not come from without; nature seldom neutralizes it, but endeavors to get rid of it, and the disease is the action of the system under influences of which the former unchangeable physiological laws constitute a great part, but the extraneous morbid principle forms another and disturbing one. The march of typhoid fever, for instance, is a regular one, of which the decline is as essential a part as the rise and progress, and with our present means the physician has but little direct control over it. Whatever our views may be as to the amount of influence we possess over its course and termination, that influence must arise from the control we have over the circumstances under which the morbid process takes place, and not from any distinct obstacle we can oppose to its progress, or any power of removing it bodily.

In the very few instances in which we possess specifics [illegible] and most especially in malarial fevers. we [illegible] the cure of art from that of nature.

[illegible] points are not without their bearing on [illegible] when, how, and how often does [illegible] to a favorable termination?

Notwithstanding the error of considering disease as an [illegible] the distinction of the cure of the disease from the [illegible] of the patient is a good one.

"Le malade est parfaitement gueri de sa maladie, mais—il est mort de pneumonie," said Velpeau.

There are certain definite sequences of symptoms, arising from very similar or from different causes, which constitute distinct diseases; and which have a natural termination of their own, though often not before they have set up some other train of processes properly to be considered a distinct disease, which may have on the patient an entirely distinct and different influence from the original one.

Measles and scarlet fever are very similar in character and symptoms; each has its definite course, and the getting well is as much a part of the disease as the getting sick; but the patient may go regularly through with all the symptoms of either, and find at the end that he has other symptoms whose connection with the primary trouble is clear enough, but are yet no necessary part of the disease. The patient may go through with his measles and die of bronchitis, or pneumonia, or abscess of the lung with secondary abscesses, or phthisis. His scarlatina may leave him with Bright's disease and various other troubles or deformities.

It is, then, the character and tendency of each special disease which is to be considered in estimating the part of nature in its cure, and it is this tendency, combined with the circumstances of each individual patient, which is to determine our opinion of his probable recovery without assistance, or to guide our action if any be necessary.

For the purposes of this essay a more simple classification than the usual ones will be sufficient, and some of the more clearly marked or important diseases shall serve as illustrations of the topic. Such a classification must be of course, as all others are, imperfect, and will violate many natural relationships.

The first class consists of the larger part of the acute diseases, and may be divided into three sections.

The first of these, including the exanthemata and some of the essential fevers, furnishes the very purest type of self-limited diseases. These diseases progress not only toward recovery, but toward recovery within a fixed time, and by processes which take place not only in regular succession, but at definite intervals of time.

Nowhere is medicine more completely in the background than in ordinary cases of the exanthemata. Even in the severer cases the efforts of the physician are rather directed to sustaining the patient's strength and attending to individual symptoms, than to any direct efforts against the morbid process.

It is not at all improbable that, had we the means of examining during life the intestinal walls in typhoid fever, we should find almost as distinctly marked stages there as upon the skin in the exanthemata, and appearances which would give nearly the same measure of certainty to the prognosis that the confluence or non-confluence of the eruption does in variola.

This fever, as indicated by temperature, with its regular rise at evening and fall in the morning, its increase for three or four days, its maintenance of about the same height for two or three weeks, and then its oscillating fall, show in an uncomplicated case, how regular, and, as it were, predetermined, the changes are which the system is to undergo. So many methods of treatment have been used with this disease and its relative, typhus, that although certain general principles have been established, and even some special systems have apparently met with much success, yet it is evident that the influence of artificial therapeutics is not the only one which directs the disease to a favorable issue.

Here, as in most diseases attended with fever, nature prescribes abstinence and keeps the patient on low diet for a few days: but it is often considered prudent not to wait for her to restore the appetite, but to feed the patient at an early period, when his own indifference and torpor prevent his desiring food.

The treatment by mineral acids, claiming something more than expectancy, and perhaps deserving it, does not materially change the type of the disease: and Polli's treatment with sulphites to prevent the further development of the poison is still *sub judice*, and seems to accumulate but little positive evidence in its favor. The possibility of cutting short the disease, though admitted by some, and, among them, by no less an authority than Dr. James Jackson, is not yet clearly proved, and moreover there seems to be no progress of opinion in that direction.

In all these diseases, even when fatal, the normal tendency is toward recovery, and the unfavorable result occurs when the strength of the patient is not sufficient to last through the natural course of the disease, or else from some secondary affection.

In the second section of this class are embraced the acute inflammations, diseases well marked as regards character and succession of events, but not so definite as the last in regard to time.

Inflammation, according to the earlier observations and theories, consisted in a change in the circulation and consequent exudation. Then Virchow placed the alterations of nutrition first, and made the supply of material a mere consequence of the demand. Now M. Charles Robin* goes back in consequence of his observations nearly to the original views, and assigns the priority to the circulatory disturbance. The nervous influence, however, though not exerted directly upon the tissues, is a very important one in the matter, inasmuch as the minutest arteries and veins next to the capillary net-work are, through the muscular fibres surrounding them, under the control of the vasomotory nerves, and by the action of those nerves under a reflex stimulus the primary changes of inflammation are brought about. The irregularities in the capillaries, the slackening and partial stagnation of the blood stream, constituting congestion, and its stoppage, the crowding of blood disks and pouring out of the serum into and between the surrounding tissues, are the further stages in the progress toward fully developed inflammation.

Now may come in the onward progress rapid but imperfect growth of lowly developed cells, at the expense of exuded serum (suppuration), with destruction of normal tissues, which takes place where the inflammation is at its height; formation of new and usually feebly organized tissue in the exudation (false membrane, fibrous adhesions, cicatrices, &c.), which takes place under a less irritation, at some distance either of space or time from the most intense action; and finally, the death of more or less of a part en masse (slough, gangrene, necrosis).

The process may, however, stop at any stage and undergo resolution by a renewal of the circulation, beginning on the outer limits of the affected portion, and a gradual return of the vessels to their normal dimensions, with an absorption of effused material.

It is through these various processes that nature ends the inflammatory diseases; as to local lesion, that is: when this depends on constitutional causes, the issue is correspondingly modified.

---

* Leçons Sur les Vaisseaux Capillaires et l'Inflammation. Paris, 1867.

Whether we have any direct control over an acute inflammation by the so-called antiphlogistic measures, is one of the most disputed points in modern medicine. I am aware of no observations to show the effect of any remedies on a small area of inflammation under the microscope; but their effects on those parts of the body where the inflammation can be actually seen, are of the utmost importance as evidence of their value.

The plan of withdrawing blood from an inflamed part certainly seems most rational and simple, and the practice of centuries, together with the testimony of physicians who have experienced its effects in their own persons, leaves but little doubt of its immediate effect in relieving pain and oppression.

As to the inflammation of external parts, nobody thinks of bleeding for erysipelas, or a boil, or a carbuncle, and if an incision gives relief, as we know it does, it is from the relief of the tension, and not because the course of the inflammation is shortened. This last event also may, however, take place from removing the cause of irritation.

Especially in diseases of the eye, so accurately studied, and so carefully treated, ought we to get clear and undoubted testimony in favor of bloodletting, if its good effects are so marked and decisive as its advocates claim; or, if not from bloodletting, we should hear of some prompt method of cutting short an inflammation, if such a method exist.

Stellwag* says, "By local bloodletting the flow of the blood from the inflamed organ in the direction of the opened vessel is facilitated, the obstacles to the circulation diminished, and so by a revulsive action the development of a stasis, the slackening of the bloodstream and the increased molecular attraction are checked." "Yet this action can never suffice to break up the inflammation." "Bloodletting is only an adjuvant which supports other antiphlogistics in the display of their activity, and as it were prepares the way." "Besides, the depletion thus brought about passes quickly away, the alterations of the current are soon equalized again, and the part returns to its former condition unless the process is opposed in other ways." "Of course the revulsion could be prolonged by repeated bloodletting, but such a prolonged depletion must necessarily lead to alterations of the blood and a considerable lowering of the patient's nutrition; and the production of such a state of things can scarcely be justified, in consideration of the limited operation of the remedy."

---

* Augenheilkunde von Dr. Karl Stellwag von Carion. 1864. S. 17 & 20.

His estimate of the antiphlogistic medicines is as follows: "Their number is great. Those most commonly in use are, mercury in its various preparations, especially mercurial ointment, calomel, corrosive sublimate, mercurius solubilis of Hahnemann, iodide of mercury, iodine, iodide of potass, tartar emetic, Plummer's powder, nitrates of potass and soda, alkaline carbonates, phosphates, acetates, and tartrates."

"In consideration of the uncertainty of the action of these remedies, the physician must refrain from their application as much as possible in pure ophthalmias; when circumstances call for it, use the milder ones, as nitre or the carbonates, and salts of vegetable acids, and only make use of the heroic when, by the intensity or extent or seat of the inflammation, the danger of an unfavorable result is at its highest, and it is necessary in case of an evil event to be able to say that all has been done that could be done."

Is any more satisfactory evidence than this to be obtained among the internal inflammations, where we lose the evidence of our most reliable sense and are obliged to depend upon the sensations of the patient and our own less accurate senses?

A pneumonia is one of the simplest examples of a severe acute inflammation. From the rapidity of the circulation and the volume of the blood it is an intense inflammation, and, from the importance of the organ affected, a serious disease. It has been made the battle ground over which the contests of bleeding, tartar emetic, and nature, as well as that allied dispute in regard to change of type in disease, have been carried on.

Bennett has shown, and the truth of his conclusions is quite extensively admitted, that none of the modes of interference heretofore practised have been otherwise than injurious, and the success of a purely expectant treatment, acknowledged or concealed under a fashionable disguise, prove nothing but the same thing.

Bennett says that we cannot draw the blood away from an inflamed lung; but it is urged, on the other side, that the object is not to withdraw blood from a part already inflamed, but to counteract the tendency. There is no anatomical nor *a priori* reason why this might not be effected by a general bleeding, but we can only say from clinical experience that we have no sufficient proof of such a result, or rather no proof that the inflammation ceases on the withdrawing of the blood. On the contrary we have a right to suppose, that as in the eye so in the lung, "the alterations of the current are soon compensated, and the part returns to its former condition." When we remember that the primary change in inflammation, so far as can be seen, is in the bloodvessels and not in the blood, this does not seem unaccountable.

Strange as such an application of the word may seem, bloodletting is little more than a palliative in most cases, and in many a serious injury. The means sometimes made use of with much confidence in inflammatory diseases for bringing down the pulse, being, as their advocates call them, substitutes for venesection, especially veratrum viride, aconite and digitalis, may very justly stand on the same ground.

Nature, then, is the grand healer of inflammation, and her medicines are rest and time. The physician has often to aid in procuring the first in various ways, or by sustaining treatment to gain enough of the second for nature to carry through in due succession her processes.

It is unnecessary to refer to the statistics and arguments in regard to the treatment of pneumonia, for views similar to these that I have expressed are very generally held, and it is well known that in a large proportion of cases, when the patient is neither very young nor old, uncomplicated and single pneumonia is not a very dangerous disease.

The resolution of a pneumonia is not a simple resolution of the inflammation, but is a more advanced stage, for the material deposited outside the bloodvessels in completely hepatized lung is removed partly by expectoration of pus, and partly is absorbed in a changed form when the blood resumes its normal course.

The severe and fatal cases of purulent infiltration do not differ from the ordinary cases in kind, but in the amount of suppuration; and every case of pneumonia which recovers, probably goes through a suppurative stage. After this is removed the lung is again useful. "The pus can be discharged or absorbed without leaving behind any change of the texture of the lung tissue."*

For the more unfavorable results, abscess or gangrene, nature is not without provision, and her cure is the only one, for when these conditions have occurred, art is absolutely powerless except for alleviation and support. When the remainder of the lung is freed from its exudation, the abscess may be encysted and its contents partly absorbed, and then calcified, or its contents may be evacuated and the walls fall together. In gangrene, after suppuration around the affected portion and its expectoration, a similar process takes place.

---

* Forster's Lehrbuch der Path. Anat., s. 299.

Rare as these events must be, they yet show the tendency which is always present, and which, if the patient have the necessary vital power, will accomplish the desired result.

This "if" is, to be sure, the one important thing, and it is but little consolation to the friends of a patient to be told after his death of a reparative tendency; and yet this tendency is what the physician is never to forget in these cases, for beyond the assistance he can render in carrying out nature's plan by prolonging the life and sustaining the strength of his patient, he can do absolutely nothing.

I have no purpose of running through the whole list of inflammations, but only to speak of a few examples to show how little direct influence we have over them.

Pericarditis, pure and simple, usually gets well, leaving less trouble behind than endocarditis. "We possess no agent which can have a direct influence on the course of the inflammatory process which takes place in pericarditis."* "The therapeutics of endocarditis is about the same as that of pericarditis."*

Peritonitis, from the severity of its symptoms and the frequency with which it accompanies some other diseases, deserves a separate mention. The inflammation, here as elsewhere, runs its definite course; but from the extent of surface involved, and the very numerous and important connections of this organ, the depression and danger are such that life often ends before the inflammation can. Nature's cure requires rest, and while she by the intense pain enforces it to a great extent, the most efficient assistance that art can render is to make the repose of all organs concerned as complete as possible by opium. It sometimes, when partial, follows a short and very mild course, as in those cases connected with derangements of the female sexual organs,* and even the cases in which it is evident that it has run a severe course are not unavoidably fatal, as shown by a case (quoted, I regret to say, from an American Journal) where a tumor, supposed to be ovarian, was actually exposed by an operation and found to consist of a ball of adherent intestines.

---

* Oppolzer. Vorlesungen über specielle Path. & Therapie. 1866.

Whether peritonitis ever terminates by resolution, or without adhesions, must remain somewhat doubtful, from the want of positive evidence of an early degree of the inflammation, yet such a termination is not improbable.

There are now certain other inflammatory diseases where the turning point is further from the beginning, or where some new element is joined to simple inflammation, or some peculiar anatomical relations make the process a more dangerous one. We may have suppuration, abscess, false membranes, serous effusion and adhesions, in places or under circumstances where they are much more difficult to dispose of or make much more trouble than the exudation in the lungs in pneumonia.

A bronchitis in the larger tubes is almost a trivial ailment, while a process of the same pathological character, and having the same tendency to spontaneous cure, occupying passages of a much less calibre, becomes a most dangerous disease, the so-called capillary bronchitis or suffocative catarrh; fatal, not because nature has no tendency to cure, but because she has not time, and the function of the injured parts cannot be for a moment suspended.

---

* Bernutz et Goupil. Clinique Medicale sur les Maladies des Femmes.

distinguishing the two forms, and is certainly not available in every case. The practical question is to know (let the names I have given be correct or not) whether the new formation is to continue downward, or to be limited to the larynx and its neighborhood; for the tendency of this formation must determine between death and possible life.

In time this peculiar inflammation, like others, subsides and its products are eliminated; but if the formation continue downward, against which event we know no effectual means, the time gained by tracheotomy is of no avail; while if the disease is merely a local obstruction, or if its course stop short of the finer tubes, the operation is often the saving of life. Thus the operation, which in each relieves the laryngeal symptoms, thus evading the fatal consequences of obstruction in *that* place, would, in the one, allow the course of the disease to complete itself rapidly and the patient to recover; while in the other, the stopping place of the exudation, though perhaps just as definite as in the first, is yet so much farther off, and in so dangerous and important a region, that the patient dies as soon as or before it is reached.

Diphtheria, not affecting the larynx, may, so far as our view of the subject is concerned, be ranked among the exanthemata and fevers.

Gout and rheumatism, having many relationships, differ much as to the amount of accurate knowledge we have of their pathology: for while in the one we know the poison, its retention before the attack, and its elimination as a cure; in the other, except from analogy, we have but little corresponding knowledge.

Clinically, however, there are few diseases of a more or less uncertain course which show more conclusively a spontaneous cure than rheumatism. Led by the favorable results of so many different kinds of treatment, many direct experiments have been made on the cure of this disease without medication, palliatives excepted, and with results much more interesting to the originators than flattering to the inventors of more elaborate schemes. Flint, Garrod, Gull, Rees, Chambers, have found the course of acute rheumatism to be nearly the same under palliative as under more energetic treatment, and some cases to recover with a rapidity which would certainly have been ascribed to the placebo used, had its nature not been well known.

The other disease with which I have, as is usual, associated rheumatism, has seldom if ever been left to itself on a sufficiently large scale to determine its natural history; yet it is very certain that colchicum is able to shorten the duration of the paroxysms, and equally so that nature has no strong tendency to its permanent cure without assistance in diet or drugs.

If, however, we look at the paroxysm as the disease, and its constant repetition as a constant renewal of the cause, it does not stand apart from the larger number of acute diseases and inflammations, and the means used to prevent the recurrence must be looked upon as rather removing the cause than curing the consequent disease.

We may, however, call the constitutional tendency the real disease; when it must be admitted that under the circumstances of life and diet in which it arose, the tendency to cure is but small; or we may say that the disease arose from a departure from nature, that is, from a normal and physiological mode of life, and that a return to nature often cures it. The difference is only in words, and depends on whether therapeutics is supposed to include hygiene, or is something added to it.

Another somewhat heterogeneous group of acute diseases is to be made on negative grounds, inasmuch as they are not exanthemata nor inflammations, and their pathology is as yet by no means clear.

Of cholera, notwithstanding the amount which has been written and observed and the theories of its pathology, good, bad, and indifferent, it can only be said that no plan as yet has received general assent as giving in *fully developed cases* better results than nature alone. That a certain proportion of persons attacked do recover shows nature's endeavor, when we consider the entire inefficiency of therapeutics in another portion. Beside our progress in prevention, we must still hope for greater power of art in this disease, for though undoubtedly nature cures many, the uncured are also very many.

In tetanus the acute cases are almost invariably rapidly fatal, but the chronic form holds out a fair prospect of recovery under various treatments, or, in other words, has a considerable natural tendency to get well.

Of hydrophobia the mention is sufficient.

Delirium tremens, left to itself, recovers in a large proportion of cases, and, like tetanus, is successfully treated in many ways.

Of the second large class, the chronic diseases, I have made four groups: chronic inflammations, degeneration, new growths, and constitutional diseases.

The chronic inflammations show, by the very fact of their being chronic, that nature has no very strong tendency to cure them, nature in our strict and limited sense that is, for they are often but a little way from recovery, and a very small change in surroundings, without medical treatment, strictly so called, may make the difference between their long continuance and speedy cessation.

The caprices of chronic rheumatic inflammations are familiar, but the remissions, which recognize as their cause nature rather than therapeutics, can hardly be considered in the light of a cure, and the whole disease, with its varying severity and constitutional cause, is analogous to the gouty diathesis, somewhat as acute rheumatism is allied to the fit of the gout.

One of the most important points to which inquiry can be directed in this section is chronic Bright's disease. Among all the classifications of kinds and stages, two forms (excluding the acute disease and the amyloid degeneration) are tolerably well established. One, in which the kidney is larger, the tubes crowded, the cells opaque and fatty; the second, in which the kidney is smaller, more fibrous, many tubes destroyed and perhaps their place taken by cysts; a chronic catarrh with increase of fibrous structure. They are also to be distinguished clinically, the first by diminished urine, much albumen, early dropsy; the second by but slightly diminished urine, little albumen, little dropsy or even none, and early cerebral or nervous symptoms. It is probable that the prognosis of the latter, if not of both of these forms is better than is often supposed, and that the usual very unfavorable opinion of their termination is owing to the want of an early diagnosis; the lesion of the kidney not being detected unless it has advanced sufficiently far to give rise to serious symptoms, or such as direct the attention strongly to the organ at fault.

It seems fair to suppose that when a part of the kidney loses its epithelial cells and undergoes contraction, it is forever unfit for its labors; but much uninjured substance may be left to carry on the work. Observation shows that patients who have suffered from this lesion of the kidney, as proved by repeated examinations of urine, may live for a long time in comfort, although obliged to be careful in throwing extra work upon a damaged organ.

Though medical aid is often of extreme importance, its function is chiefly to adjust the work to be done to the diminished capacity for doing it, until the system accommodates itself to altered circumstances. An early diagnosis is of great importance, and enables us sometimes to assist nature to a cure, or at least a suspension of the disease, which otherwise she might accomplish.

On the other hand there are well marked efforts on the part of nature, if not to cure the disease, at least to counteract some of its evil consequences. Purging and vomiting often seem to be spontaneous, and relieve the blood of excreta which have failed to pass off through the usual channel. I do not feel sure how far these remarks would apply (except as to the eliminative processes just mentioned) to the first form of Bright's disease with the enlarged kidney, which seems to have more connection than the one we have been considering with a blood disease, and has accordingly a more unfavorable prognosis.

Among the formative or plastic inflammations is one group which consists of hypertrophy or hyperplasia of connective tissue in various organs. It constitutes the primary lesion in certain inflammations of the spinal cord,* the thickening of the stomach so much like cancer, cirrhosis of the liver, the chronic fibrous or interstitial pneumonia, and is also concerned in the degeneration of the kidney just spoken of.

There is nothing to be said of nature's part in the cure of these diseases, for no cure takes place except in chronic pneumonia, where the diagnosis is always open to a doubt as to the form of the disease; and in the affection of the kidney, where there is rather a temporary suspension than a cure.

The catarrhal processes are in themselves of much importance, but especially so in regard to their consequences.

I shall make no apology for following the more modern views of so called tuberculosis, nor for taking Niemeyer† as their exponent, since although these views are not very new to pathological anatomy, yet they have not before received so systematic an application to practical medicine, and especially to the most important subject with which they are connected, namely, pulmonary phthisis.

---

* Frommann. Anatomie des Rückenmarks. Jena, 1864.

† Clinical Lectures on Pulmonary Phthisis, translated by J. L. Parke.

According to him, phthisis in the majority of cases belongs with the chronic inflammations, or is even occasionally an acute inflammation, that is to say, a pneumonia; and the so called infiltrated tubercle is a degeneration of inflammatory products of a disease, usually but not always catarrhal in its character, rather than the ordinary fibrinous, or, as he calls it, croupal pneumonia.

This view has of course great influence on prognosis and therapeutics, and Niemeyer accordingly says that he does not consider chronic pneumonia or its resultant phthisis an especially dangerous disease, and he ascribes to certain antiphlogistic, or rather antipyretic measures, a most marked efficacy in arresting its progress.

The belief in the curability as well as the recovery of many cases of phthisis has for some time been gaining ground in the profession, and the views I have referred to, must, as any advances tending to greater accuracy and nicer distinctions in pathology, give more precision and directness to our efforts in that direction, especially if diagnosis keeps even pace and enables these distinctions to be recognized during life.

If the author quoted shall be sustained by experience, we must regard the new field opened to therapeutics as a domain captured from the enemy, and not as relinquished by our friend and ally, nature, for some of the recoveries must be always attributed solely to her. Of the purely spontaneous recoveries, the wood chopper whose case Dr. James Jackson details in his letters is a good example. Flint* finds among the cases he has analyzed, a certain small proportion who have recovered without any special treatment. Perhaps a nicer diagnosis and a distinction of the different forms will enable us to say in which cases the intrinsic tendency to recover is the stronger.

---

* Practice of Medicine, p. 276.

The method of cure is that of a retrograde metamorphosis of the caseous products, the cells becoming degenerated, wholly or partly absorbed, and their place occupied by fibrous tissue or calcareous degeneration. It seems to be a certain element of chronicity, which cannot be accounted for except on some not very definite theory of constitution, which permits this termination. When the course of the primary pneumonia is more rapid, cavities are rapidly formed by the degeneration of the exudation, and a galloping consumption is the result. If, however, the deposit and the softening take place more slowly, the morbid material may be evacuated, and the cavity either cicatrize or become lined with a smooth, serous like membrane. The more usual form of cure is a degeneration, partial softening, absorption of the caseous products, and a fibrous or cretaceous transformation of the remainder. The rare event of a vomica emptying into the pleura must be regarded as one of nature's mistakes.

First of the new growths which make the next division of this class, true tubercle, the little collection of new and lowly organized cellular elements, can for our purposes be soon disposed of, whether in the tubercular disease of the lungs, either consecutive to the caseous degeneration of pneumonic products or independent and primary, or in tubercle of the intestine or meninges. It is almost necessarily fatal; we have no remedy against it whatever, and supporting treatment is of little avail.

"If we have recognized that a phthisical patient is tuberculous, we do not send him to Nice, to Cairo, &c., but permit him to spend his last days among his own relations and die in his own household."*

"The few cases which are scattered through the annals of medicine, can be regarded only as the exceptions which prove the rule that hydrocephalus, following the law of tubercular disease in general, is almost incurable, while it proves mortal all the more frequently owing to the importance of the organ which is its seat."†

The terms used to designate the differences of new formations or heteroplastic growth, more or less related to cancer, express in themselves the usual judgment, not precisely of what nature may be expected to do toward a cure, but how far she is likely to assist and confirm the efforts of the surgeon in that direction.

As to the truly malignant growths, nature's cures are so rare as to have no practical value whatever. Arrest or extreme slowness of growth are of more importance in prognosis or in deciding the question of the propriety of surgical interference.

Two processes‡ may produce a temporary, or in extremely rare cases a permanent cure, even in scirrhus and encephaloid cancer. First, the tumor may simply stop growing, or perhaps slowly contract. This may possibly be due to the cutting off by the growth, of its own supply of blood, a proceeding which has been surgically imitated in growths of a less malignant character. Second, sloughing and removal of the mass.

Important and interesting as this subject is, there is the less to be said upon it from our point of view, that we know little or nothing of the causes which determine so favorable events, nor of the precise manner in which they are brought about.

---

* Niemeyer, op. cit. † West. Diseases of Infancy and Childoood, p. 90.

‡ Paget's Surgical Pathology, pp. 520, 558.

In the whole question of malignancy and recurrence, is involved, in spite of all the theorizing, an entirely unknown element, which makes it impossible to reason about heteroplastic growths, except in the light of a most extended experience. The solution of this problem demands a greater array of more carefully elaborated facts than has yet been accumulated. The recurring fibroid and malignant fibrous growths of Paget show how difficult it is, until the experiment is actually made, to say how far nature will allow the surgeon's efforts to be successful, for many growths which return cannot possibly be distinguished anatomically from those which are considered innocent.

The less malignant growths are less likely to be studied as to spontaneous cures, from their greater amenability to surgical treatment. The fibrous tumors of the uterus have a method of cure peculiar to themselves, beside those seen in other tumors, in their removal by the muscular efforts of the organ in which they are contained or imbedded.

A very familiar example of a spontaneous cure of a papillary and epithelial growth is the removal, by charms and domestic applications, of the warts with which so many children's fingers are adorned. The patient undergoes some mysterious manipulation, and is told not to look for a certain time, and when he looks his wart is gone. This probably takes place by a partial absorption of hypertrophied papillæ and desquamation of the epidermis, assisted, perhaps, by accident.

Ovarian cysts undergo spontaneous cure by ulceration into intestines or vagina, or an opening, accidental or otherwise, into the cavity of the abdomen where its contents are absorbed and excreted.

In the next section, the degenerations, the deposit of fat within the elementary structures, resulting finally in their destruction, is the most frequent and most important form.

Its physiological uses show the essential unity of health and disease. The difference between the fatty degeneration of the uterus and that of the heart is not in the nature of the process, but in the time at which it occurs: the first not becoming affected until the immediate call for its activity is over; while the second organ can never rest from its work until life ceases.

If the degeneration were to begin in the uterus while still liable to be called upon for muscular contraction, and be sufficiently far advanced at the time of its great effort, it would either fail to act or be ruptured by the superior strength of portions less far advanced toward complete loss of structure and function.

So the rapid destruction of fatty cells, which in the mammary or sebaceous glands, or in the liver of some invertebrates, furnishes the normal secretion, if it take place in the kidney, where the cells are not so rapidly replaced and the means of escape for degenerated portions are insufficient, destroys the proper structure, and renders it incapable of carrying on its proper function.

Complete fatty degeneration is the death of the part affected; and upon the time of its occurrence and the anatomical structure of the organ in which it occurs, depend the relations of the local process to the disease as a whole, so that it may be as regards the general condition either a step upward or downward.

Its therapeutic uses are strictly analogous to its physiological, in removing or rendering capable of absorption various morbid materials. When the exudation of pneumonia softens and the large inflammation corpuscles or degenerated cells are formed, together with the pus of which also the cellular elements are more or less fatty, it is this progress toward death which renders resolution possible.

The liquefaction of the caseous formations usually called infiltrated tubercle, as well as of the true tubercle, with their partial absorption and expectoration, and even the fatty degeneration of cancer, are more or less successful attempts to get rid of matter which would be injurious by its continuance in the body.

We might even generalize further, and speak, as does Paget, of general fatty degeneration as the natural mode by which life is gradually terminated as man draws near the "limits of his course and fulfils the appointed cycle," but this grand cure for all diseases is what we are to try to put off to the latest possible day.

Of the local degenerations which do or may occur before the rest of the organism is so far advanced, and which are of special importance, the chief are those of the heart and blood vessels. For the first, nature has no cure; since no part of the heart can be temporarily withdrawn from labor, and the little comparative rest which can be given is rather a palliation than anything approaching a cure.

For the consequences of degeneration of the cerebral arteries nature has resources, though the causative lesion itself remains the same. A large part of the cerebral clot formed by rupture of a degenerated artery may be absorbed and the remainder do no harm, except by the interruption it offers to the course of a certain number of nerve fibres.

The partial recovery which often takes place soon after an apoplectic or simple paralytic attack is probably due to a removal of pressure, at first perhaps from an adjustment of the cerebral circulation, and afterwards from an absorption of effused blood. The amount of paralysis remaining for a longer time depends on the number of nerve tubes actually ruptured. Even this lesion can be repaired, though at a longer interval of time; at least there is no reason why a restoration of nerve tubes should not take place in the brain as well as in peripheral nerves.* This restoration takes place after a previous extensive fatty degeneration of the white substance of the nerve fibre, though it is probable that the essential part, the axis cylinder, remains intact except where actually ruptured. Clinically we know that an amelioration of symptoms nearly approaching a cure not infrequently occurs, and considering the inaccessibility of the organ, and the little means we have of influencing its processes, these improvements, after what we have reason to consider a serious organic lesion, must be almost entirely due to nature.

Fatty degeneration of the kidneys does not hold so important a position at the present day as a few years ago, when it was considered the essential lesion in Bright's disease. It is probably in most, if not all cases a secondary lesion, and the cases where fat exists in the profusion indicated by the plates figuring in so many text books, must be extremely rare. It is doubtful whether a small amount of fat is even morbid; it certainly is not a very serious lesion.

Of the amyloid and pigment degeneration so little is known clinically, and they are so seldom present alone, that there is but little to be said about them, except in relation to the pigment disease known chiefly from the work of Frerichs.† This seems, from the cases he reports, to follow much the same rules in regard to recovery as the severer forms of intermittent fever, of which it is a result and a complication.

The calcareous degeneration is usually an accompaniment of the fatty, and enters with it into the cure of tubercle. It is often found in cancer. There is of course no cure for it by nature or otherwise when it occurs in the arteries, but sometimes calcareous masses are gotten rid of by ulceration, especially from the lungs.

---

* Vulpian. *Leçons sur la Physiologie du Système Nerveux. Leçons* XI, XII

† Clinical Treatise *on Diseases of Liver.* Syd. Soc. Trans. Chap. VIII

Four constitutional or blood diseases make a fourth group of chronic diseases—syphilis, diabetes, scurvy and malarial fever. Two others included elsewhere should perhaps be here, but for the cure of tuberculosis (using the name in its restricted sense), there is but little to be said; while in regard to the different forms of the second, the local lesion seemed a more tangible subject than an ill-defined blood disease.

As regards the natural history of syphilis as left entirely to itself, we have had, and are likely to have, no well-recorded experiments on a large scale, but the discussion as to the use of mercury brings us a long step nearer to a natural treatment than the position of the medical profession when that metal and its preparations were regarded as specifics; for certainly the tonic or simply hygienic treatment now used by many is less likely to obscure its natural progress than so powerfully alterative an agent as mercury. Entirely neglected syphilis must be a rarity, and from the debilitated constitutions likely to be possessed by those in such circumstances as to be indifferent to or unable to obtain assistance for so serious a disease, such cases would hardly be fair examples of its course in previously healthy systems. Dr. Josef Hermann,* of Vienna, in a report made on June 22d, 1867, gives a detailed defence of his method of treating syphilis without mercury, and proves, so far as statistics introduced for that purpose can prove, that the duration of the disease is shorter, and the relapses fewer, than by the mercurial plan. He reinforces his own extensive experience by the experiments of the Swedish government, and of Fricke in Hamburg, besides many other authorities, of whom the best known are Devergie, Bärensprung and Boeck.

---

* Wiener, Med. Wochenschrift, No. 61—67.

Especially apt to our purpose is the energetic declaration of Despres,* basing his opinions on experiments at the Hospital St. Louis: "And farther I say, that a surgeon who is in a position completely to control the hygiene, regimen and manner of life of a patient for eighteen months, will cure syphilis without a so-called specific."

Without passing judgment upon, or even discussing the question of the relative value of different methods, these quotations are enough to show that excellent results may be obtained by a treatment much nearer to nature than the specific one.

As to the method of cure we can say but little, inasmuch as it really consists in a cessation of the constitutional tendency rather than in any peculiar process of the local lesions, which, when the general disease gets better or wears itself out, cease to be peculiar.

A consideration of the bearing of our question on scurvy would be chiefly a question of definition, since it is a well known fact that under one set of hygienic conditions, nature cures scurvy promptly and completely, and under others has no tendency whatever in that direction. The patient remaining in the same circumstances in which the disease originated, nature's share in the cure is small or none. Art, however, is often able clearly and efficiently to take her place.

It is somewhat so with diabetes also. The means for its cure are principally dietetic, but unfortunately nature does not lead the patient as in the case of scurvy to adopt the necessary measures, even when it is entirely possible to do so. "No diabetic need expect to recover or continue well who cannot exercise self-control and make up his mind to be temperate in all things." Self-control is usually far from being nature.

---

* Id., No. 68.

There are, however, differences in the tendency of various cases towards recovery, but the determination of these is not very easy as a matter of prognosis, though they show some effort of nature for a cure.

Intermittent fever might seem more appropriately placed with the other essential fevers, and if the paroxysm, or even a single succession of paroxysms, were the whole disease, it would have no right in this connection. But the poison remains so long in the system, and the cachexia is so marked, that it may very well be considered chronic. No disease could have a more perfect cure by nature than a single paroxysm of ordinary intermittent does. The constitutional affection is said in time to wear itself out, and in a favorable climate undoubtedly does so. A remittent follows a course of somewhat the same character as the continued fevers, and obeys somewhat the same rules as regards recovery, while even the most pernicious forms often yield spontaneously for a while. This temporary amelioration of the pernicious forms is the part of nature, but art must seize the opportunity or nature will be insufficient to the cure.

One of the most remarkable circumstances connected with this singular disease, next to the periodicity of the separate chills, is the relapses or recurrences which occur after a cure or temporary cessation, at intervals said to be multiples of seven days. My own experience has included quite a large proportion of recurrences at intervals of twenty or twenty-one days.

If in a healthy climate an attack be interrupted by quinine after one or two paroxysms have occurred, the next recurrence at an interval of two or three weeks will probably be much milder, and the succeeding one milder still; so that by a combination of art with nature the disease wears itself out, if not sooner, as regards the whole length of the disease, than by nature alone, yet with a much less number of sick days.

The third great class of diseases contains those arising from accident or injury, and some lesions from disease where the cure is rather an effort to make up for the bad effects of the morbid process, than an attempt to cure the original affection. This might be called the class of repair and compensation in distinction to the others, or those of cessation, elimination and recovery. It is in a large measure surgical.

The curative efforts of nature are as clearly to be recognized in surgery as in medicine, although the former is able so much more boldly and positively than the latter to take some essential part of the cure out of nature's hands.

From the processes being more accessible to observation in surgery than medicine, it is possible to distinguish more accurately the part in any cure due to art and the part to nature. Art removes a tumor which nature probably never would do, but nature heals the wound which it would be impossible for art to unite with anything more vital than a seam. It is the possibility of knowing our limits, when to interfere and when to let alone, which brings surgery so much nearer than medicine to the position of an exact science.

It is not necessary to describe the various processes by which nature unites wounds of the soft parts, whether by immediate union, primary adhesion, or granulation, since it is well understood that the influence which art has over them is small, except in the way of adjustment, though the character of the atmosphere and the cleanliness of surroundings, as well as sometimes an epidemic influence not easily to be accounted for, may make great differences in the behavior of wounds aside from the personal condition of the patient. It is the reparative tendency of nature which alone makes operative surgery possible.

In fractures, the deformity of neglected or badly treated limbs often proves how strong nature's efforts at uniting broken bones are, and also how regardless she often is of their subsequent usefulness. A fractured clavicle, however, cannot be better treated as regards curvature than by simple repose on the back. A fractured femur in the young unites with excellent results when the knee is flexed and the limb laid on its outer side, precisely the position which nature enjoins to relieve the pain.

In Circular No. 6, from the Surgeon General's office, are a number of engravings from bones which have undergone the process of repair after compound and usually comminuted fractures. These all show an excess of repair, if such an expression be allowable; that is, an activity of the bone-forming process, which does not lead to the strengthening of the limb so much as a less amount of deposit differently disposed would do, but which makes a much greater demand on the endurance of the patient.

In the less violent fractures which are more often met with in civil life, than those from which these plates are taken, one of nature's provisions for the cure is the fact that more or less periosteum remains, connecting the two portions, and this supplies the callus simply by an exaggeration of its ordinary function.* The luxuriant and useless formation of masses of new bone, as shown in the violent fractures met with in military surgery, is probably due to the tearing and forcible transplanting of pieces of the osteogenetic membrane among the soft tissues. The part of nature here is quite clearly defined as being only a part, and not the whole, of a complete cure; for although, supposing the patient's strength to be sufficiently enduring, nature would undoubtedly remove many of these superfluities, yet art could do very much by removal of fragments to lessen the amount of new growth.

---

* Review of M. Ollier's book in Am. Jour. Med. Sci., Jan. 1868.

The whole surgery of gun-shot wounds of bones shows how great are nature's curative powers, but unfortunately just as clearly how often they prove insufficient for their heavy task. The resections, especially those of the elbow, often show most conclusively how very complete nature's completion of the surgeon's work may be, the motions of the joint mentioned being sometimes almost perfect.

Although nature has a cure for some dislocations, yet it is far inferior to that of the surgeon, and is rather a compensation or adjustment than a real cure. The head of the humerus makes for itself, when dislocated, a new socket, and acquires a certain amount of motion sometimes nearly approaching the normal, while the old socket is filled up. The same is true of the femur, whether dislocated by violence or by inflammation and caries. In the latter case, however, a more usual result is anchylosis, and very likely at a most inconvenient angle.

The part of nature in the repair of injuries to bones or to joints is to get rid of fragments too much injured to be useful, to cause the adherence of parts which are kept in constant and immovable apposition to each other, and to form, if they are not so kept, a ligamentous union, and sometimes to restore, by means of the periosteum, the whole or a part of a missing bone. The determination of the angle of union, and the utility of one kind of union rather than another, whether osseous or ligamentous, are not in her province.

The surgeon has, to a certain extent, the control of these agencies, whether they shall act for good or for evil; and though he has no power to cause the growth of a single plastic cell, or cause the deposition of a grain of phosphate of lime, yet his arrangements may determine whether the cells and the salt shall produce a useful limb or a cumbrous deformity.

There are two forms of spontaneous cure of aneurism. In the first, the artery beyond the tumor becomes smaller and the collateral branches on the cardiac side enlarge. The circulation is thus rendered slower through the sac, and the deposition of layers of fibrin on the walls is favored until the tumor becomes solid. The primary changes probably arise from the greater or less obstruction experienced whenever the calibre of a tube through which a current of fluid passes is abruptly changed. A process of this kind goes on in every aneurism, although so seldom leading to a cure, and the layers of fibrin prevent a more rapid enlargement of the tumor by giving greater firmness to its walls.

The second method is the inflammation of the tumor, which closes the artery and causes suppuration and abscess. A fortunate termination of this kind is even more rare than by the first, but there is an example of it recorded in the American Journal of Medical Sciences for January, 1868. These terminations are unfortunately exceptions and not the rule, but their practical value in relation to some of the larger arteries, especially the subclavian, is enhanced by the fact of the great want of success in operative interference.

Another of nature's curative, or rather compensating processes, belonging to the circulatory system, is the hypertrophy of the heart which occurs when the labor to be done is increased. This is seen most clearly in valvular derangements, where the increased bulk and strength, although abnormal, can hardly be considered morbid. Its existence in Bright's disease is not so readily accounted for, but is probably due either to obstruction from the altered relation of the blood to the tissues, or to a local difficulty in the renal circulation.

The process of sloughing, gangrene or necrosis is to be considered, first, as to the cases in which it is a cure of a previous disease or deformity; and, secondly, as to the means which nature uses to conduct the process to its appropriate termination when it is itself the essential lesion. When the cavity of the intestine is narrowed or closed by an intussusception and the subsequent swelling, the removal of the obstructing portion is sometimes effected by sloughing consequent upon the pressure cutting off the supply of blood. The piece is discharged, and the edges from which it has been removed contracting new adhesions, the continuity of the tube is restored, with nearly its normal calibre. A similar process takes place in a hernia too long strangulated, though here the removal of the part is not so important as the adhesions which should be formed before the separation of the strangulated portion takes place, for the knife might supply the place of nature in removing the affected part.

When gangrene or necrosis takes place, either as a cure in the cases just mentioned, or simply as a result of disease, nature takes much pains in the separation. The old dead material is partially absorbed, while, on the comparatively healthy side, granulations arise under the stimulus of a foreign body, and form a new surface. The surgeon can interfere in these cases to as much advantage as in almost any possible disease, but he must be content to wait nature's time if his influence is to do the greatest good with the least harm.

I have thus endeavored to show, by some examples, what are nature's methods of cure, and her attempts to cure in various diseases. Such cursory indications, often of very exceptional occurrences, are of course valuable only in discussing a general and somewhat theoretical question, the practical application depending on a much more careful study than would be possible here, not only of each disease, but of each class of cases, bearing in mind, too, the part of art as well as the part of nature.

The proposition that in many cases nature has a very strong tendency to cure, in others makes some attempts, sometimes successful, sometimes unsuccessful, and in others still makes none that we can see, does not need to be proved, but only suggested; although the extent to which we may rely upon her assistance in individual cases is often a fair question of discussion, only to be settled upon the basis of careful observation, not necessarily by doing nothing, but by watching in an unprejudiced spirit the course of disease and the action of remedies. This fact, if not disbelieved when formally stated, is often forgotten, sometimes by physicians, but chiefly by the laity, and leads to all sorts of misapprehensions, and furnishes a field for all sorts of charlatanism. It is not strange that it should be so, for we cannot, however much we may try to cultivate an entirely unbiassed judgment, always avoid the error of *post hoc ergo propter hoc*, without falling into a frame of mind much more uncomfortable and also more injurious, if not to science at least to the community; that is, a general medical scepticism or unbelief. It is much better for the physician, however it may be for the medical philosopher, that he should sometimes overrate the effects of his treatment, than that he should believe that no treatment is of any avail; since in the one case he will work, while in the other, if he be honest, he will do nothing; and there are few who will not admit that much good may often be done by art, even where nature has the chief control.

Besides errors due to personal prejudice, the intricate character of the subject matter, and the infrequency of opportunities for comparing similar conditions, render the attainment of correct conclusions by no means an easy task.

Occasio præceps, judicium difficile. There is but little immediate danger of disbelieving views becoming largely prevalent, and those who have represented most strongly the sceptical side would undoubtedly have indicated their beliefs as well as their disbeliefs, had there existed an equal necessity. There must on this subject, as on all others which cannot yet be included among the exact sciences, be two extreme views, and the truth probably lies between them. Its precise position is to be sought by observation, and not by imagination or theory.

A general indefinite belief in nature's power to cure disease and in our own slight control over it, would lead to little practical result, except a diminished feeling of responsibility and a disinclination to interfere; but an accurate and careful study of nature's methods furnishes the best and only reliable foundation for rational and efficient therapeutics.

The advantages are many of an appreciation, both within and without the profession, of nature's part in the cure of diseases.

I. Pure science is advanced.

II. The use of our present means of healing will be rendered more precise, and therefore more efficient.

We may distinguish several plans of treatment according to their relations with nature's methods.

(*a*) Of those which follow nature more or less closely.

1. Pure expectancy, combined with attention to hygiene, and, if necessary, palliatives. (Those cases in which the diet has a specific effect, as especially in scurvy, are not to be considered as treated by the expectant method.)

2. Supporting treatment; whose object is to keep the patient alive while nature has time to complete her processes.

3. Adjustment and arrangement; removal of obstructions and diseased parts, allowing nature to complete the work; principally surgery.

4. Eliminative treatment; helping the system to get rid of morbid material.

(*b*) Of those which more or less oppose nature.

5. Symptomatic treatment; where an attempt is made, by controlling some prominent symptom, to control the disease. This includes the antiphlogistic.

6. Specific treatment.

These plans are seldom used alone, but in various combinations with each other.

Returning for a moment to the mathematical figure before made use of, we may consider the hygienic treatment to influence the form of the function by supplying the most favorable values for the co-efficients; the supporting, to place at its highest value the variable representing the patient's forces; the eliminative, to reduce the value of the variable representing the force of the disease to the lowest point consistent with existence of the function in its usual form; and the specific, as giving it an unusual form by reducing the last mentioned variable to zero.

III. The search for new methods of cure will be rendered easier and more successful from having a fixed standard of comparison, and from the less confusion of remedies. Less time and labor will be wasted in going over familiar ground. There is no reason why we may not reasonably expect, not only greater power of prevention, but actually a greater control over disease, than we now possess.

IV. The true relation of the physician to his patient will be better understood, since his art will be as far from being considered powerless by the sceptical, as from receiving the blind, unreasoning, and often unfounded confidence of the ignorant.

V. To descend to lower ground, a general understanding that the part of the physician is to be familiar with disease and acquainted with its natural course, not always to use active measures for a cure, will be a most efficient means of lessening the amount of more or less respectable quackery. The more people know of medical subjects and the more fully they are aware of the truths I have endeavored to enunciate, the less success can be looked for by shameless vaunters of panaceas, or by members of pseudo-scientific organizations, who cure self-limited diseases by specifics, and increase the value of their boasted triumphs by ignorant or fraudulent diagnosis. When the truth is popularly appreciated, in vain will such say to each other, in the words of the great satirist of our profession, "Soyons de concert auprès des malades, pour nous attribuer les heureux succès de la maladie, et rejeter sur la nature toutes les bévues de notre art."*

In order to gain all possible advantages from a recognition of nature's share in the cure of diseases, the thing most essential is not only a correct but a nice diagnosis; not only an ability to give a name to the disease, but an appreciation of the more delicate shades of difference in nearly similar cases, or a recognition of distinct forms. A large part of our necessary uncertainty in prognosis arises from our not being able to recognize differences which must of course exist in the character of cases; for although it is easy to say, after adding up a column of figures, that under a certain treatment a certain proportion of cases of a given disease get well, while the rest die, yet it is undoubtedly true that under the *same* treatment *all* the cases of the *same* kind follow the *same* course, and have the same termination. We may not be able to see a dividing line, but it must exist; and the percentages and probabilities which we gain from statistics are only temporary substitutes for the certainty which we hope increased knowledge will give. The uncertainty is not in the variability of nature's laws, which are as unchangeable in physiology as in astronomy, but in their complication and obscurity, which prevent our being able with our present knowledge to calculate their effects.

---

* Molière. L'Amour Medicin.

Just as the increased precision of diagnosis in affections of the thorax, consequent on the discoveries of auscultation and percussion, enables us to trace with more certainty the natural history of these diseases, and appreciate more accurately the action of remedies thereon; as Bright's discovery lends more certainty to the prognosis of dropsy, and as a more scientific knowledge of tumors justifies more confident predictions of recurrence or non-recurrence, and shows the character of the evidence on which assertions of cures of cancer rest; so may a division of phthisis, according to the views I have above quoted, or otherwise, allow us to know which cases are inevitably fatal, and which hold out a prospect of cure, at the hands of nature alone, or assisted by art; and so may diabetes, from our knowledge of the causation and pathology of its different varieties, be a more intelligible and therefore more manageable disease. Perhaps a division of rheumatism into several varieties may yet be made, resting on a firmer basis than recent alleged microchemical discoveries, which will explain its capriciousness and lead to therapeutic measures of invariable instead of accidental success.

But as we look hopefully into the future, let us not forget that the opposing senses in which we have here spoken of Nature and Art are narrow and onesided, and that all the resources of therapeutics, whether moral, hygienic, medicinal or mechanical, are but natural agencies which the physician is to adapt to his special cases.

It is said as truly of our art as of others: "A true announcement of the law of creation, if a man were found worthy to declare it, would carry art up into the kingdom of nature and destroy its separate and contrasted existence."

DR. HIBBERD'S

DISSERTATION.

"*Nature dominant—Art ancillary.*"

PREFACE.

In the abundant and diversified literature of medicine, the diligent bibliographer may find authority for almost any position assumed. The writer has not, therefore, in the following pages, sought to sustain his views by an array of cited professional opinions, although he has not failed to quote authority for particular facts, for prevailing professional sentiment, and for historical data; and when so quoting, an earnest effort has been made to select from writers more distinguished as representatives of the profession than for the individuality of their characteristics.

The aim has been to inductively demonstrate "the part performed by nature and time in the cure of diseases," and to substantiate the point in a scientific and philosophic manner, beginning with such general principles, facts and assumptions as are acknowledged truths by intelligent persons, and arguing from the premises to logical conclusions.

The author has an unfaltering conviction, that no right estimate of the relative parts performed by nature and by art in the cure of disease can be made, except the initial movement be from the stand-point of biology—normal and abnormal. In this paper it is, of course, only possible to lay down the broader generalities that should guide in this direction; still it is hoped enough is said to indicate the value and necessity of this line of study.

Some readers are apt to credit an author, not only with the views and opinions expressed in his writings, but also with others that they infer his reasoning would lead to. This is more than an author should have done for him. In the ensuing dissertation there is no design to discuss principles, practices or agents, farther, nor in any other direction than will illustrate the main object; and if the legitimate interpretation of the language used carries the reader beyond this, it will do what the writer is studiously anxious to avoid.

DISSERTATION.

"In no class of human events is the reasoning of '*post hoc propter hoc,*' so commonly applied, by the world at large, as in what relates to the symptoms and treatment of disease. In none is this judgment so frequently both erroneous and prejudicial." **HOLLAND.**

To answer the question propounded for a dissertation, accurately and with such perspicuity that all candid and unprejudiced professional minds should recognize the answer as truth, is of prime importance: its accomplishment would mark the beginning of the epoch of perfection in medicine.

In the study of this subject, it will, perhaps, be best to present it, first, in its relations to

BIOLOGY.

In approaching this part of the task, it will be well to lay down some postulates, which shall have the force of axioms in guiding our investigations and in controlling our conclusions.

1. Every class of vitalized matter is the subject of a natural law, peculiar to itself, which maintains its class identity.

2. In the human family, this law determines that in the development of an impregnated ovum, the educt shall be a man and not an ape, an elephant, or any other animal.

3. By this law man's stature at maturity averages, perhaps, 5.6 ft., but his normal height may vary from 4.8 ft. to 6.4 ft. His weight averages 140 lbs., but weight may normally range from 80 lbs. to 250 lbs.

4. Man has a period of growth, maturity and decline, and is not a constant quantity at either period. There is no closer relative approximation to unity in stature or weight, during growth or decline, than there is at maturity.

5. While, therefore, the law of reproduction in man, as to kind is imperative, considerable latitude is allowed in the details of the fulfilment of that law; and this latitude extends to all parts of man—two men of equal stature may not have equal weight, nor equal length of limbs, nor equal development of viscera, nor equal functions, either corporeal or psychical.

6. This inexorable law of reproduction and latitudinous development of individuals under it, is not peculiar to the human family, nor even to animated existences; it runs through all organic nature, sometimes more restricted, sometimes more amplified. Cats will produce cats, but the members of this domestic branch of the feline family will vary in size, color and disposition. Six seeds of an apple will produce six apple trees, but they will be diverse in size and shape, and the appearance and flavor of their fruit, but not one of them will bear a plum, a walnut, or an acorn.

7. Accepting these statements as great truths in nature, we must not fail to recognize, that accident or design may interfere to make still greater variety in the development of vitalized organisms. Tom Thumb, 28 inches high and weighing 45 lbs., and the so-called Scotch giant, 7.6 ft. high, and weighing nearly 600 lbs., are wide departures from the standard of normal physical development in man, from accidental causes; and the American idiots, so long exhibited to the public under the name of the Aztec children, are examples of accidental psychical abnormities.

Whole classes of people produce distortions by voluntary efforts. A tribe of North American Indians have flattened sinciputs consequent upon compression in infancy. Some of the Chinese have feet scarcely a tithe of the natural dimensions, produced by an arrest of development in infancy by intentional compression. The Jews are still looking for the advent of the Messiah, by virtue of an education running through all the generations of Israel.

8. We see, therefore, that large variations in the results of the operations of nature's law are effected by impediments to its operation in the ordinary channel, and these impediments may be voluntary or uncontrollable, patent or impenetrable.

It is important to remember, however, that the results, such as given above, are only accomplished by the consumption of much time in the application of the impediment to normal developement. An Indian cannot alter the shape of his father's skull, nor can he permanently flatten the head of his child by a few minutes' pressure, nor by hammering it as he would a lump of lead. He must keep the compressing board in service until, in the process of nutrition, the bones of the cranium have all their tissues organized to the abnormal figure. The Chinese cannot take an adult human foot and compress it to one tenth its existing dimensions, nor shave it down as they would a piece of wood, nor chip it off as a block of stone. They must take it when it is small, in infancy, and arrest its development by such carefully adjusted envelopes as will retard its growth without destroying its vitality.

Psychical abnormities are produced also by the aid of time. No Moslem may be filled with the doctrines of the Hebrews by the most earnest reasoning of an hour's duration; but if a Mahomedan neonatus shall be reared in a Jewish family, the religious conclusions of its mature years will be the abiding faith of its foster parents and their ancestors.

These postulates, besides establishing certain truths for further future purposes, allow us to draw the following corallary; that when a surgeon has distorted members of the body to restore, nature and time must be his chief reliance, and his appliances, whatever they may be, only serve to guide and encourage the physiological forces.

PHYSIOLOGY.

Our next proper inquiry is into the functional activity of the human system, and this cannot well be understood except as we glance, in connexion therewith, at the structure and development of the body, both as a whole and in detail.

The body consists of members, apparatus, organs, tissues, and proximate principles. Each of its parts has reached the position it occupies, and attained the development it presents, in obedience to the great natural law especially governing its organization. But this body does not have any activity *per se.* Physical organizations are not endowed with activity, but with a *capability* of activity, which must be excited by a stimulant* before there can be any dynamic phenomena.

Let there be no misapprehension of this point, for it is the paramount idea in pathology as well as in physiology, and without a clear conception of it in the latter, its importance in the former will not be maintained. To repeat—an organization is not active by virtue of its organization, it is only capable of action when prompted thereto by a stimulant that calls out this capability, and this is true of the body as a whole, and in all its parts, even to each ultimate " vital unity;" and farther, this activity is continued so long as the stimulant is operative, and no longer. In this particular the human body may be likened to a great manufacturing establishment:—on Sunday the machinery is all in place and quiet, but ready for activity; on Monday a fire is kindled under the boiler, and presently the whole establishment is resonant with the hum of machinery in motion. The difference between the two, in part, is, that the human body has no Sunday, and in the origin and manner of application of the stimulant. Take a man at any given period of his existence, and he has been brought to that point by an active vitality, and he is equally ready to be carried farther by a continued active vitality, but this activity does not pertain to his organization *per se*, it is the result of a stimulant applied to his organic structure, and the stimulant must be continued or activity will cease.

---

* The general term *stimulant* is used here and throughout the biological part of this dissertation, in its comprehensive signification, meaning anything that excites activity.

Proper stimulation is not a single phase of force; the stimulant is different for different organs; even for the same organ it is not always identical; and for the multiform stages of existence it is varied to suit the condition. All that appears to be required to stimulate the fecundated egg to vital activity is an adequate degree of warmth maintained for a sufficient time. Certainly this is true in birds, and analogy convinces that it is the same in man. Having reference to birds, warmth, continued within certain narrow limits, will cause the segmentation of the vitellus; the formation of the blastodermic membrane and its division into an external and an internal membrane. From these proceed the orderly development of one tissue and organ after another, until the age and state is attained when the new being is extruded from its fœtal surroundings, and taking food through its buccal orifice, digests it in its internal organs and maintains its own animal heat. During the period of incubation the heat supplied to the embryo must be maintained comparatively close to a central degree, for if it rise above the maximum, or fall below the minimum, at any stage, vital activity would be destroyed, and no re-application of the proper degree of heat, nor any other means, could re-establish it.

Caloric is essential to the development of the fœtus, but it is not all that is essential. Nutrition must be furnished, and this is prepared and presented by the maternal parent, involuntarily and unconsciously, under the law of her being, and is absorbed through the membranes of the fœtus. After birth the food is taken into the interior through the mouth, is there dissolved, and is absorbed through the membrane of the alimentary canal into the circulation, and then distributed to all parts of the system.

The instinct of hunger stimulates to the taking of food; food stimulates to its solution in the digestive tube; and the solution stimulates to its own absorption: then, through a series of actions, reactions, and associations, all vital activities are maintained; and the energy of vital action within natural limits is proportioned to the amount of stimulation.

In the protozoa, the medium in which they live, and which is at the same time the bearer of their food, is, with caloric, the sufficient stimulant to excite their full activity; but as we rise in the scale of animal organization, the affair becomes more hidden from observation, and is soon lost to view except in its results.

At least three kinds of activity must be recognized in man: namely, a functional activity, as when a muscle contracts; a structural activity, as when a part simply maintains its structural integrity; and a developmental activity, as when a part increases the number or size of its elements. So intimate is the relation among these activities that frequently they are inseparable, and doubtless they are sometimes correlative.

The stimulant necessary to excite these several activities varies, and in so complex an organization as that of man, where the resultant of the activity of one organ is often the stimulant to action in another, and where the nervous system comes in to complicate the subject by making a stimulant that impinges at one point, operative at another and remote point, the whole affair becomes exceedingly intricate, and too profound for full elucidation with our present knowledge. For the purpose we aim at, the idea that must be made clearly manifest and kept constantly in view is, that a vital organism is not of itself active, and not endowed with activity, but with a capability of activity under appropriate stimulation; and that such activity continues as long as the influence of that stimulant is maintained, and no longer. This is the grand, central, fundamental idea of physiology, and without its broad and distinct recognition we cannot take a single satisfactory step in the domain of biology.

A man, then, consists of a mass of organized, vitalized matter, having a certain form; made up of a certain arrangement of members; constituted of certain tissues, organs and apparatus; and these composed of "vital unities" or "proximate principles," each endowed with a capability of activity by the allwise Creator in the beginning; and this capability of activity constantly operative under the stimulation of a force also ordained to the purpose by the Creator. The sum of these activities constitutes the phenomena of human life. Human life is never a static, nor a constant quantity. That "nature abhors a vacuum" is an old scientific adage; we might originate another—nature abhors rest. Nothing in nature has absolute rest, so far as we know. Motion, ceaseless motion, is the universal law of all things of which we have cognizance. Man's organization is constantly changing, in some parts more rapidly, in others more slowly, but still always changing, even from before conception until after death.

An adult man consumes an amount of nutrient material equal to the weight of his body in about twenty-seven days (*Dalton*), and consequently the complete metamorphosis of all his tissues must take place in periods, the average of which is twenty-seven days. But the blood and other of the more plastic and more active tissues change very rapidly, while the cartilages and other firm and slightly yielding tissues occupy much time in their physiological molecular changes.

Not only is the molecular metamorphosis ceaselessly going on, but the tissues have a life to live and a time to perish in, shorter or longer according to the nature of the tissue, and as the period of observation is closer or more remote from the date of conception: the umbilical vesicle as a medium of nutrition is supplanted early in embryonic life by the more elaborate placenta, and this in turn gives way to another method at the conclusion of parturition. The deciduous teeth come and go in the early years of independent life; and as old age creeps on, one organ after another arrives at that stage of its existence when its functions are so imperfectly performed, that they cannot do their duty in the general life of the body, and somatic death ensues.

Before closing this section, reference must be made to the influence that mental processes exercise over physiological functions. That such influence is powerful and persistent, even in the modification of nutrition and development, must be obvious to any one who contrasts the actions and appearance of an affluent, educated man, with the illiterate navvy who only delves and eats. To fulfil the needs of our present study, this allusion to physiological stimulants will suffice.

PATHOLOGY.

If the foregoing broad and comprehensive statements convey the great and fundamental truths of general physiology, then we shall have but little difficulty in understanding, in an equally broad and comprehensive sense, the essential features of general pathology.

Beside the normal stimulant that calls forth normal or physiological activity, constituting health, an abnormal stimulant may be applied to a part and cause an abnormal activity, producing abnormal or pathological results. This is known as disease, and this may pertain to either or both of the activities of function and development, already mentioned. But in the case of development, instead of producing an increase in the number or size of the proximate constituents of the part affected, it establishes a decrease; or more commonly the direction of its activity is perverted, and products abnormal in constitution, time, or locality, are the result.

Pathological stimulants in their nature, source, and mode of application are as profound, intricate and difficult of observation as physiological stimulants. They are sometimes of external and sometimes of internal origin, and quite frequently the resultant of diseased action in one part is the excitor of diseased action in another. In such case the pathological stimulant passes through the same channels, and is carried by the same agencies provided for, and used by, physiological stimulants. The nervous system is as ready to transmit pathological as physiological stimulants, the excitor impinging upon one point and the excitement showing itself at a remote point.

Furthermore, many things that in one quantity would be a physiological stimulant, would in another quantity be a pathological stimulant. For examples:—let a man drink half a pint of water and it will serve a normal purpose in his economy; but let him drink half a gallon and it will prove an emetic or a stimulant to some other abnormal activity: let a man eat six ounces of beef and it will prove a healthful nutrient, but let him eat six pounds of the same and it will act as an excitor of disease. Let a man, unaccustomed to manual labor, chop wood earnestly for a few hours, and his hands will be blistered; but let him apply the same friction of the axe helve gently and slowly, and in a few months his palmar cuticle will acquire several fold its former thickness and be almost as insensitive as leather.

It has already been shown that physiological activity is allowed considerable latitude for its operations, and we have just seen that pathological activity is but a diminution, an excess or a distortion of the former. Hence we easily deduce the fact, that physiological activity may shade off into pathological activity in such manner that the most acute observer will not be able to say where the one ends or the other begins.

Pathological activity does not continue of its own force, but is maintained only by the persistent application of a stimulant that compels the part, as it were, to violate the physiological law; and as soon as the unnatural stimulant is withdrawn, the physiological activity is resumed as before, or as nearly so as the altered structure will admit.

If a pathological stimulant be so powerful, or so long continued, as to induce activity beyond physiological restraint or recuperation, the affected part loses its vitality and is no longer under any biological law, but is controlled by the ordinary affinities of inanimate matter.

The initial point, then, of all abnormal function and structure is the influence of an unnatural stimulant upon the vital units of the tissue or organ affected. The particular nature of the departure from health that may ensue depends upon the nature of the stimulant, the structure and condition of the part stimulated, and other circumstances of accidental association. In the great majority of internal diseases, the exciting causes are shut out from our knowledge. We use certain conventional terms which, by common consent, signalize something that produces recognized results, but convey no definite idea of what that something is, or how it acts. We say often that cold produces pneumonia, but it is something more than the absence of caloric, for according to the United States mortality census, District No. 1, composed of New England and New York, has a mean winter temperature of 22.96°, with one death from pneumonia in every 12,873 inhabitants; while in District No. 8, composed of the four South Western States, the mean winter temperature was 53.10,° and the deaths from pneumonia equal one in every 3,250 of inhabitants. Telluric miasmata produce intermittent fever; but what is a miasm? The virus of a rabid dog will create a hydrophobia; but what is the virus of rabies canina? The effluvia from one suffering from measles will communicate the disease to another who has a liability; but what is the effluvia of measles? If the kidneys fail to excrete the urea a train of morbid symptoms ensues, due to an excess of urea in the system; if the liver do not eliminate the cholesterine, a disease known as cholesteremia will follow. Each of these excrementitious matters acts in the blood the rôle of a pathological stimulant to certain tissues, and brings on its respective disease; but what was the morbid stimulant that disordered the kidneys and liver, and arrested their legitimate service?

When we find gummata in an infant six years old, we know that it is the victim of the syphilitic poison, and has been, for months at least, most likely for years; but where was the primary sore? on the infant, on the mother, or on the father? and how many phases has the virus assumed between the chancre and this tertiary manifestation of its continuance? Here, plainly enough, is an instance where the resultant of diseased activity in one tissue has become the stimulant that excited disease in another tissue.

[illegible] with the [illegible] If by a blow [illegible] a man be rendered senseless, we [illegible] that oppresses him. If a [illegible] wheel of a railway [illegible] of the gangrene [illegible]

[illegible] the mental states [illegible] the classic [illegible] without [illegible] mother may [illegible] her womb. [illegible] trying to [illegible] slipped, and [illegible] himself was [illegible] almost pulseless [illegible] The arm [illegible] pain, and [illegible] yet when the arm was exposed it was [illegible] the [illegible] —A woman was supposed [illegible] infant. The coffin was [illegible] and the procurator-fiscal who [illegible] declared that [illegible] which [illegible] But on opening the coffin it was found to be empty, and it was afterwards ascertained that no child had been born, and consequently no murder committed. Numerous instances might be given of individuals engaged in duels, or on other occasions, who have supposed themselves to be wounded, and have fallen down as if dead, without having received the slightest injury." The experience of every practitioner will give him cases where great sorrow, or sudden grief, brought him patients with bodily ailments most difficult to heal; and most of us can recall instances where sudden joy has proved the stroke of death. Every reader's memory will enable him to review a host of such instances as have been recited, or even more striking ones, for medical literature, whether ancient, mediæval or modern, is dotted over with illustrative narratives of this tenor.

THERAPEUTICS.

"Remedies do not act upon dead bodies."

There is a world of wisdom in this maxim of Cullen's, and, constantly remembered, it would prevent a continent of errors, and an ocean of mischief. It should be the starting point for every student who sets out to acquire the science and art of treating disease; over every chair from which therapeutics is taught, it should be inscribed in attractive and legible letters; and it should be a necessary imprimatur to every text-book upon the same subject.

The therapeutist must, therefore, have a living body to exercise his skill upon; and not only this, but he must have a diseased one. Etymologically, therapeutics signifies the art of curing, healing, and this must be its practical definition likewise. Prophylactics is the art of maintaining health or preventing disease, and however intimate these two branches of medicine may be, we must not lose sight of the distinction between them.

A physician, being consulted by a party, his first point is to ascertain whether the party is diseased (for certainly he is alive). Here the physician should be careful to discriminate between the great latitude in physiological activity and its results, and actual pathological activity and its results. It would not do to consider the Scotch giant a case of pathological hypertrophy, and undertake to reduce him or reduction to the average standard of human weight and stature. It would be equally mischievous to regard Tom Thumb as an instance of faulty assimilation and endeavor to force his nutrition until he attained the dimensions of average man.

When a man is recognized as sick, the question generally propounded by the physician to himself is—what medicine shall the invalid take? Whereas it should be—does he need to take any medicine? To answer this question aright, presupposes a perfect acquaintance, not with the name merely, but with the nature and course of disease, and with the force and virtue of remedies. That our acquaintance with these particulars is not perfect, but on the contrary lamentably deficient, is as patent as the noon-day sun.

At the recent opening ceremonies of the Clinical Society in London, the venerable and eminent Sir Thomas Watson said, "Certainly the greatest gap in the science of medicine is to be found in its final and supreme stage—the stage of therapeutics." "We know tolerably well *what* it is we have to deal with, but we do not know so well, nor anything like so well, *how* to deal with it." "To me it has been a lifelong wonder how vaguely, how ignorantly, how rashly, drugs are often prescribed. We try this, and, not succeeding, we try that; and, baffled again, we try something else." "Our profession is continually fluctuating on a sea of doubts about questions of the gravest importance." "Of Therapeutics, as a trustworthy science, it is certain that we have as yet only the expectation." Now if Sir Thomas Watson—a man who has had, perhaps, near half a century of close and thoughtful observation, of acknowledged eminence as a practitioner, a teacher and an author—bears this testimony to the status of therapeutics in the year 1868, before the élite of the profession in London, shall we not receive it as conclusive, that much of the teaching in this department of medicine from the professors in our colleges, from the text books in our libraries, and from the overflowing of our abundant periodical literature, should be taken, not as fixed scientific truth, but at least *cum grano salis*?

This vacillation spoken of by Sir Thomas, this jumping from one remedy, if the patient does not quickly improve, to another, and another, is the joint offspring of the error so prevalent, already mentioned, that an ailing man must always take medicine; and another equally popular mistake, that every disorder might be cured by drugs if we could only hit on the right ones. Practitioners with these notions ignore the fact that most of human diseases tend toward spontaneous recovery, and count as nothing the unaided efforts of nature. But with the light and knowledge we now possess of pathological activity, and with the uncertainty that overhangs the action of medicines, we ought to lay it down as a guiding maxim, that *all disease should be left to the hazard of nature where art cannot establish an indefeasible right to interfere.*

Too many active therapeutists are careless of the disturbance made by potent medicines. Such disturbance is never a matter of indifference. If it is not curative, it must necessarily be detrimental. Perhaps it was Abercrombie who compared a physician, heroic in the administration of medicine, to a courageous man who went in the night to assist a neighbor who was grappling with a burglar. Entering a dark room where the two men were scuffling, he laid about him with a club, breaking the first head he struck, fully hoping and expecting it would be the burglar's, but, unfortunately for his good intentions, just as likely to be that of his friend.

Medicines which would create disease if given to a man in a normal physiological state, should be withheld from a sick man, except upon indubitable evidence that they will when the thorn was removed by the natural process, and restoration will begin; but no interference whatever will arrest the inflammation until the thorn is removed or ceases to act as a pathological stimulant.

But in internal inflammations we do not know what the pathological stimulant is; and if we did, in most instances it would probably be beyond reach. Internal inflammations are not of traumatic origin, and often, at least, are excited in one part through the mysterious agency of the nervous system by a pathological stimulant applied to another part; as when humid cold comes in contact with feet accustomed to dry warmth, there will follow a cynanche within twelve to forty-eight hours. Of course there can be no removal of the cause in a case of this kind. And, moreover, there is fair ground to suppose inflammations of this character partake of the nature of self-limited diseases, which have a definite order of phenomena to pass through, that can neither be arrested nor abridged.

It is not within the purview of this dissertation to seek largely into the uncertain proof of numerical statistics for support, but it may not be improper, in this connection, to adduce something in relation to a single point, from the stores so largely accumulated by the late controversialists over the therapeutics of pneumonia.

The average natural duration of uncomplicated pneumonia is about fourteen days, but it varies probably from five to twenty-eight days. And in this variation is found the great difference between many of the specific diseases and common inflammation. An inflammation of the lung may involve but a small portion of one lobe and run its course in five days, or it may spread over an entire lung and occupy four weeks in its progressive development and decline; while an uncomplicated rubeola will consume four days with its initiatory fever, and four more with its rubeoloid eruption to the beginning of convalescence. Here then clearly is a distinction between measles and inflammation of the lungs. .In the former, the whole system is involved in the same pathological movement, at nearly the same moment, and for about the same period; while the latter, beginning at a point, may be confined to that point, or may spread over an indefinite space, the pathological activity at the starting place having passed its maturity, and be on the decline before the remotest point that is to become involved loses its physiological integrity. If this position be well taken—and its truth is probably clear to the apprehension of every biological student—much of the doubt and uncertainty that hang over the therapeutics of the phlegmasiæ ought to be dissipated by the light it reflects on the natural progress and termination of these disorders. The cause of this contrast in the two pathological activities is to be sought for in the operation of that triune biological law, which teaches, that all pathological activity is the result of a pathological stimulant, coequal with its application and coeval with its duration.

The aim of this paper does not admit a farther pursuit of this topic, nor an inquiry into the kindred subject of the diverse natures of many of the plegmasiæ. For example, rheumatism and white swelling are both inflammations; but how different! Croup and tonsillitis are both inflammations; but how unlike!

From the foregoing we deduce this corollary:—*that when a part is inflamed we have no power to jugulate the disease; all we can do with medicaments is to conduct it to a safe termination, through assisting a natural process by the aid of time.* And if we have the ability to arrest the spread of inflammation, it is done by virtue of our suppressing the pathological stimulant, or by raising the depressed vital power of the part threatened, to a degree that will enable it to resist the morbid stimulant.

this class are but a slight departure from health, a mere unwellness, as varicella. Others are of very serious import, often causing great mortality, especially in the character of epidemics. Variola may be cited as an example of this variety. Before the time of Sydenham variola was treated actively, under a distorted phase of the ancient coction and crisis theory, and the results were most disastrous to life, as well as the cause of terrible suffering while the victim was alive. Now the cure is entrusted entirely to nature and time, and whatever medication is resorted to, it is with the sole idea of ameliorating the symptoms, and mitigating the severity of the sequelæ.

With fevers as a class, we are learning to meddle less and less. For intermittent, and a certain form of remittent fever, it is true we have a specific, and it is the only specific in the whole range of medicine. A quarter of a century ago it was deemed necessary to prepare the system by bleeding, emetics, cathartics, &c., for the administration of the cinchona or its salt. At present physicians use few or no preparatory measures. In regions where malarial fevers most abound, the people keep by them and prescribe quinia, without consulting the doctor, neither do they institute any domestic measures of preparation, trusting to nature and time, successfully, for what is not done by the great antiperiodic.

Typhus and typhoid fevers are now classed among the self-limited diseases, and no efforts are made to arrest them by the most enlightened physicians; but they are managed through their natural career with no other effort than to assist nature and time in bringing about a favorable termination. Nevertheless there are practitioners who hope to cure such fevers with drugs, and one cannot read the treatment of them with alterants, with counter-irritants, with opiates, with stimulants, with mineral acid juleps, with milk, and with divers other articles as leading medicaments, without being forced to the conviction, that the course of the disease is in no wise altered for the better except by such articles and such management as assist nature in bearing up, supporting and nourishing the system, until the pathological condition finishes its career under its own law of existence.

In the phlegmasiæ we have a class of diseases which have been supposed to make the most urgent demand for therapeutic interference. The word inflammation implies a fire, and the theory was, it must be smothered, quenched, stamped out, the sooner the better, as you would suppress a rising conflagration in your house. Can this be done? Let us inquire what inflammation is, before we essay an answer to this query.

For our present purpose it is not material whether we adopt the pathology of inflammation so beautifully presented by Paget; or that originated by Bennett; or that derived from the writings of Virchow, or as modified by the views of Robin, or the cellular theory of Beale. In either case the inflammatory genesis is a local disturbance of the nutrition of the part affected, so occult as to be discernible only by the aid of a great magnifying power, and it has advanced through all its primary stages before it advertises itself to the ordinary senses of the medical observer. Inflammation now is an accomplished fact, and of course cannot be arrested. Whatever power medication can exert would be available only to confine the inflammation to its present limits. This could be done, undoubtedly, if we could remove the pathological stimulant that is exciting the mischief. If a thorn have penetrated the flesh and is left there, it will excite inflammation, in the suppuration of which it will be loosened and flow away in the débris of the disease, and the disturbed tissues will speedily regain their normal condition and functions. If the thorn be withdrawn by art, at any stage of the process, the diseased activity will cease to progress, as it did not to take advantage of this fact, let us turn to a disease rapid in its course, often fatal in its result, and, from its recent visitation over the civilized world, fresh in the memory of all—epidemic cholera.

During the years 1865, '66, '67, foreign and domestic professional literature, monographic and periodical, has teemed with the treatment of cholera. For the obvious reason that the ground is too extensive to be gone over in this connection, no attempt will be made to rehearse the almost countless methods of treatment that have been reported; but the attentive student cannot fail to observe, that they have been of the most diverse character, and not infrequently diametrically antagonistic. Nevertheless, whenever there has been unusually small or great mortality, research has shown that the result was not attributable to the activity of the treatment, nor the want of it, but to certain extraneous conditions having little or no relation to either. The lessons to be gathered from the recent visitation of cholera are these: that physicians have not been able to settle upon a definite treatment of cholera in any of its stages; that after the disease is fully developed, no treatment has been of much avail for good, and that prophylaxis through hygienic and sanitary measures is of vastly more importance than therapeusis through drugs and medicaments.

Cholera, therefore, as well as rheumatism, helps to bring us to the decision that nature and time are the prime agents to cure disease, while physicians are but the helpmen to assist the process when opportunity opens the way. These examples will serve to illustrate the point involved, and no value will come of pursuing the line of argument further.

MATERIA MEDICA.

Turning from the contemplation of diseases and their multifarious treatment, let us consider for a space the remedies themselves and their application, and determine whether the conclusions it leads to are in unison with those already attained.

The primary list of U. S. Pharmacopœia embraces over three hundred drugs, the secondary about seventy-five drugs, and the preparations number about five hundred, making an aggregate of nearly nine hundred officinal articles. The medical virtues of all these and their therapeutic application are duly chronicled in our text-books and proclaimed by our college teachers, but in nearly all instances from the erroneous stand-point that regards diseased activity as something to be taken out of nature's hands and be made subject only to the controlling power of medicaments.

Inferentially, if not positively, every student of medicine is indoctrinated with the idea that medicines are to be his sole reliance in combating all serious disease; that pathological activity is nature off the track, running wild, and that she will continue to go from bad to worse, until wreck and ruin are the result, if he does not check her in her evil course, and restore her to, and keep her in, her normal way, by the superior force of his remedies. This error has not seized upon physicians only, but the wrong opinion has become almost universal among the people through the propagandism of medical men. It is in obedience to this mischievous education that ailing people are continually changing from one physician to another, from physicians to medicasters, and from these to the countless nostrums that line the shelves of every apothecary. When an invalid takes medicine and is not restored to health at once, his belief is that he did not have the right remedy, or not enough of it, and, nothing doubting, he recommences and continues until he recovers or ends his existence.

To such an extent does this practice prevail, leading to the consumption of such vast quantities of medicine—much of it under the patient's own prescription for a supposed disease diagnosed under the instigation of groundless and vague apprehension; more of it under the delusion purposely thrown around him by the maker or vender of nostrums—that much mischief is done by the improper use of medicines; so much, indeed, that it overbalances the good arising from the proper administration of them, and authorizes one to say, without hazard of error, that the aggregate effect of all medication in the civilized world is the reverse of what is intended. And this will continue to be so until the profession fully realize the fact that nature and time are the main factors in the cure of disease, and that the use of medicaments is of secondary importance and must be strictly subservient thereto.

When the profession shall be filled with this faith, and proselyte the people to the same standard of belief, the day of the medicaster will have passed, the nostrum-maker's occupation be gone, and the physician will have no more cause to lament that every pretender who dubs himself doctor, and assumes the rôle of prescribing medicines, shall be esteemed a physician by the community.

A brief review of two leading classes of medicines, and of two important individual remedies outside of these classes, will serve to illustrate the whole range of medicaments.

Cathartics.—"Purgatives," says Stillé, "continue to be regarded by the vulgar as the most efficient of all remedies. This partiality arises, in some degree, from the prejudice which the coarse and ignorant have in favor of whatever is vigorous or even rude in its action, but, it must be confessed, from the unquestionable relief also which cathartic medicines afford in many of the ailments of this class of persons, whom the habitual use of coarse food, as well as the neglect of personal cleanliness and of the calls of nature, render peculiarly apt to be benefited by purgatives and depurative agents." "The evacuant method," says Hufeland, "has outlived all medical fashions and hypotheses, and we may with truth declare that in a great number of cases the intestinal canal is the field of battle upon which the issue of the most important diseases is determined."

Medicines of no other class are, or have been, so constantly used as cathartics, but fewer of the drastic variety are now prescribed than formerly. These evacuants, however, have not had an uninterrupted popularity from the beginning. Hippocrates inculcates caution in their use in fevers, and the methodic sect among the ancients discarded them. Galen, Celsus, and Sydenham, like the "old man of Cos," insisted on moderation, while Hoffman wrote an essay "on the propriety of rejecting them entirely from the materia medica." Rush was a warm advocate for cathartics in yellow fever, while Hamilton magnified their therapeutic importance to the highest.

At present, although not so freely used by the people as they were a decade ago, they are still popular, while, on the other hand, a prominent class of medicasters proscribe them altogether. Physicians hold very different opinions and practice about cathartics. Some, adhering to the ancient ideas of the virtue of drastics, give them with great freedom, while others confine their prescriptions to the mildest laxatives or the simplest enemata for general purposes.

This abundant variety in the past and present status of cathartics carries as irresistibly to the conclusion, that they are not an essential element in the general management of disease; that something else is the primary agent, and they are but auxiliary.

Emetics.—Another important class of remedies of long time renown is emetics. Stillé says, "Emetics, or medicines given to produce vomiting, are among the most anciently, the most universally, and the most constantly employed of and time perform the whole of the cure; but the *inception of the proper conditions* is a plain matter of induction, an intellectual work, a physician's work; nature indeed *executes* the whole of this also, but in order to distinguish such important and special work, there is an obvious advantage in placing it in a category of processes contemplated in our theme, as *set over against* nature and time, as one of the other things to be claimed in and for the Curative Art.

But there are diseases that afflict mankind, which we do not know to be dependent, in the least respect, upon any want of care over the person, diet, occupation, place of habitation, exercise of the passions, or which if we do know to be so dependent, we cannot expect to find a remedy for, after their onset—by caution against any of the means that would have prevented their incursion. A person prostrate with disease is in no condition proper for the reception of general precepts for care of health. We ask, then, what will the duration of such disease depend on? If the disease be one of the zymotics, it must have characters from the observance of which we can say something quite certain is known of its normal duration—"*if undisturbed by medication*," that is, if not made fatal by medication. Can any conceivable medication that allows the patient to live, concur with the continuance of such disease proper for ninety days? Do all varieties of medication present any known respective varieties of duration of the disease? If not, are diseases (in which the patient survives) so much disturbed by medication as some would have us believe? In other words, we will ask if there is not reason to believe that there is virtually a great number of cases of natural diseases among those concerning which we hypothecate that they have been disturbed by medication, and therefore that their natural history has been masked —so that, this hypothesis not being true, their natural history has not been masked? If the metallic tractor had been placed upon the arms of such patients, instead of drugs administered to them, should we not as readily say, that this had been the disturbing medication? We should certainly say so if there were any presumption that the tractor could do a positive evil in some way as truly as many fear that the drug does. Most surely the tractor-practitioners, who, from the nature of the case, would be prone to think that something, all-important, depended on the *method* of employing that instrumentality and that there might be highly injurious methods, could consistently argue that some of the methods masked the disease, and was a disturbing medication. We hope to show, later in this essay, that there is good ground for believing that the great varieties of drug-medication, so, far as they depend on diverse drugs, merge in few and similar results in the organism, a portion nugatory, a portion semi-laxative, a portion distinctly cathartic, and that the particular results aimed at, of diaphoresis, diuresis, refrigorancy and stimulation are not attained. What we wish to do here is to claim that there is a fair natural history of diseases, from default of the expected or pretended results of medication disturbing them. Would that we were not obliged to except blood-letting, as an agency of fearful power in masking disease. It is frightful to contemplate the record of this agency, employed to "subdue" fever, to the extent of twenty or thirty ounces for the adult a day, for three or four days or longer; while the absence of dietetic nourishment conspires to exhaust the sufferer, at a rate for which we have no parallel with a well person.

Dr. Pemberton, who wrote of peritonitis sixty or seventy years ago, states that on the eighth day of that disease, "unless the proper means are taken to remove the disease, the patient most commonly expires." These proper means were blood-letting. Few physicians to-day believe that the patient "most commonly" expires on the eighth day. It is without any kind of bleeding, and by most physicians with only limited topical bleeding, and many of them without even that, and yet now, as twenty-five years ago, patients recover from fever and inflammation, under all kinds of management. No question can, consequently, remain that bleeding, general or partial, is not essential to the restoration of the victims of these two classes of disease.

Most certainly, if, in all the revolving centuries through which the practice of bleeding has been fluctuating, its agency, or any degree of it, had been essential to the cure of disease of any character, it would have been recognized, and so remained. That pathological activity was arrested and the subject of it recovered his health whether bled or not, must be taken as conclusive testimony that something other than bleeding was the cause of recovery, and that bleeding, at best, could only have been opiferous.

Mercury.—Mercury is another of those powerful agents which has had many and violent oscillations of reputation among persons who practise, as well as among those who consume remedies, for the relief of illness.

Mercury was introduced into medicine about the close of the dark ages, and has maintained a position among the important remedies ever since. A third of a century ago it was exhibited in nearly all forms of disease by most physicians, and its virtues were lauded to the highest by many, as a very catholicon.

Now among the most acute physicians its employment is limited to a few specific purposes, while many do not prescribe it at all, and for years several leading classes of medicasters have pursued it with a hue-and-cry, until it is somewhat under the ban of popular prejudice. All this leads to the inevitable conclusion, that whatever the real merits of mercury may be, there is another something that abates diseased conditions, whether mercury be among the medicaments applied to, or not.

In the whole armament of the physician, no other remedy has had so much reputation as either bleeding or mercury, and if the attempt has been successful to show, that neither of them is at best other than a hand-maiden to the restorative powers of nature and time, it must be received as tantamount to having established the same status for every article and appliance that medical men use for the reëstablishment of the physiological state, when it has been lost from any cause.

Mental Influences.—Mental conditions have a marked power over the recovery of persons from a pathological state. All teachers inculcate this idea, and yet there can be no shadow of doubt that the great body of practitioners overlook, or disregard, the importance that should be attached to it. No reference is here intended to the insane, neither to those who labor under hysteria or hypochandriasis, but to the ordinary patients that are encountered in general practice.

Stähl was perhaps the originator of the idea of the controlling power of the mind over the functions of the body, but he saw as through a glass darkly; while we of to-day, who choose to avail ourselves of the knowledge within our reach, will find much of the obscurity of Stähl's age vanished and out of our way.

Presenting countless phases, and coming from unknown sources, the drift of a patient's thoughts will frequently determine whether he shall recover his health or succumb to the disease. A conviction of restoration, and faith in the means used to that end, will carry an ill man through what might, without these, prove his fatal sickness. No physician can be a successful or popular practitioner, no matter what science he may have compassed, or to what art he may have attained, if he lack the ability to inspire his patrons with faith in his therapeutic skill. Possessed of this, a man will outstrip those who are his peers in everything else, but lack this; nay more, an inferior man imbued with this attribute will have the rank, standing and success with the populace, of the most gifted and accomplished.

Stillé says, "Sentiments of partiality or aversion, and indeed all preconceived ideas respecting the operation of medicines, in many instances, determine their effects. The cures of the charlatan, whether he be an itinerant vender of panaceas, or a smug exhibitor of mesmeric jugglery, and those of the self-deluded enthusiast confident in an imaginary power, are often real, and at times so wonderful as to pass with the populace for miraculous. The same power, honestly employed, is the secret of success of many physicians, who, inferior, perhaps, to others in knowledge of disease and the use of medicines, are superior to them in their ability to control the will of the patient, and inspire unquestioning faith in the remedies which they employ. Philosophy is never so unfitly introduced as at the bedside of the sick. By a judicious use of the patient's belief, not only may recognized medicines become the means of accomplishing purposes which they are physically incompetent to fulfil, but inert matter, imbued with faith, may produce important physical effects. Simple neutral substances, such as a few grains of salt, or bread pills, may induce vomiting or purging; some colored drops may assuage a violent nervous headache, excite diaphoresis, or promote sleep. In this connection, it is sufficient to refer to the salutary influence of cheerfulness and hope, and the depressing effects of a dull tone and despairing manner, not only on the comfort of the sick, and their progress toward health, but absolutely on the issue of their sickness."

Habershon gives this instance: "In a patient who had suffered from hemiplegia, and was in a nervous condition, but who could not be persuaded to discontinue medicine, two, tablespoonfuls of spring water were followed by violent purging, and when changed for a pill of bread the same effect was produced, and nothing could induce her to take another pill. She believed them to be powerfully aperient, and purging took place."

Plenty of such examples are to be found in the books, and the experience of every practitioner of a few year's standing, who has kept his eyes open, will furnish him others.

Every rational man knows, that so far as true homœopathic remedies have any physical effect whatever, it is accomplished entirely through the mental force of the patient; yet many sick persons get well who take only real homœopathic medicines, and this recovery must be ascribed to nature in some form—surely not to medicine.

As a further general illustration of the idea presented, reference may be made to the oft-recited fact in military surgery, that after a decisive battle the wounded men of the victorious army will recover faster, and from more serious injuries, than those of the defeated army, although they be subjected to the same treatment, and have the same sanitary and hygienic surroundings.

But enough, except that as a fitting close to this recital, allusion may be made to that poetical instance where Dr. Rush called back to fullest flame the flickering vital spark in a lady, who had been borne to the verge of life by typhus fever, to whose wandering senses he presented the talismanic shibboleth of "hawk's nest," which called up such inspiring reminiscences, associated with an object in the past, which, through the years of their common youth, had had their untiring united adoration, as to initiate her return toward complete recuperation.

Looking squarely at the position of mental processes as a modifying force in the progress of pathological activity; and remembering, that they are but rarely considered in the evidence upon which the profession rests for the status of any given medicine; we are fully justified in asserting, that science, philosophy and prudence alike dictate that the present reputation of drugs should be received by the student with many grains of allowance.

The lesson we are taught by this division of our study, applicable to our present purpose, is to be found in the fact, that this mental force is one of the natural powers brought to bear for the relief of disease; and whatever value attaches to it in this behalf, must go to the credit of nature and time in any correct estimate of therapeutic factors.

Uncertainty in Drugs.—It is not an easy problem to determine the amount of adulterated and sophisticated medicines that are dispensed on physicians' prescriptions. That many of the drugs are impure, and imperfect, and some of them inert, is conceded on all hands. The sources of the information on which this conclusion rests are abundant and constantly accumulating with the observant. It will answer all our ends, however, to refer only to the reports made to the American Medical Association.

In 1848 the report says about $1,500,000 worth of drugs were imported, and more than one half of many of the most important chemical and medical preparations were worthless, and often dangerous; and these facts were reiterated in 1849. About this time the United States Drug Inspection Law went into operation, and its first effect appears to have been to impede and lessen the importation of foreign sophisticated drugs, while it gave an impetus to domestic rascality of the same stamp, so that quiniæ sulphas and morphiæ sulphas, bearing the genuine labels of the most reliable manufacturing pharmaceutists, were found adulterated to the extent of twenty-five to thirty per cent. This abasement was in no wise the act of the party whose label the medicine bore, but was done by the dealers to whom the manufacturers sold in good faith. In 1850 the report assures us that while the foreign adulteration is now small, the domestic is still increasing. After this date there appears to have been a looseness or dishonesty in the work of the inspection of imported drugs, or otherwise, an incompetency in the inspector; for in 1864 we have the report of Dr. Squibb, that the drug inspection law has been a failure, and that worthless drugs are as common now in the markets as they were before the enactment had an existence.

Nostrums.—And there is still another and a broader field wherein to cultivate our doubts of, and lessen our faith in, the sanitary efficacy of our prescriptions, viz., the thousand and one proprietary medicines and quack nostrums which constitute the major part of the sales of medicines by retail druggists throughout the country, and after the use of which, we have ample testimony that the takers not only get well, but honestly believe their cure to be due to the use of the nostrums.

Thus again we are admonished not to fall into the delusion, that, with our drugs of uncertain reputation and undetermined strength, we cure the distempers of man, but let us reverently acknowledge the saving power of nature and time.

Increased Life-time.—During the last fifty years a conceded increase in the length of human life has taken place in many of the larger cities and more densely populated districts of the civilized world. In no quarter is there an assumption that this percentage added to the general term of human existence is due to the more artificial management of disease; on the contrary, it is acknowledged by all competent parties that the causes of premature death arise from the neglect of the natural laws of health, and the increased longevity has its sole foundation in the better hygiene of the people, and the more thorough enforcement of sanitary regulations around them; thus demonstrating, that it is the prevention of disease, and not its cure, to which we are indebted for the lengthening of the span of life.

Hospital Testimony.—On the supposition that the more regularly the medicines prescribed were given, and the more carefully the attending physician's instructions were carried out. the more certain and the more speedy would be the relief of the sick, we should expect that in the hospitals, where the medical officer is supreme, where the medicines can be kept pure, and the dietetic and general management made as artificial as may be esteemed best, there would be the maximum of recoveries, and the minimum of time wasted in sickness. There are no statistics accessible to the writer to elucidate this point except from Paris, and these show conclusively that the sickness-time and death-rate of the poor who are treated in their hovels, amongst filth, without adequate nourishment, and under many unfavorable hygienic surroundings, is less than amongst the inmates of the great Paris hospitals. The same state of affairs is most likely true of every large hospital fully occupied, wherever situated, and is probably properly ascribed to the depressing influence upon vitality of large numbers of sick kept in close proximity for a great length of time. However this may be, and whatever the true explanation, it is entirely safe for us to draw the conclusion that the most accomplished and autocratic art cannot afford to ignore nature and time in the cure of diseases.

Historical Review.—The paramount importance of nature in the restoration from disease has been recognized by nearly all the leading minds in medicine since the earliest historical times; and there cannot be much doubt that it will continue more and more to claim the consideration of enlightened men, as candid observation and just induction add to our stock of positive knowledge.

Before the time of Hippocrates medicine was too mythical for us to learn anything of its positive tenets. But the Father of Medicine himself, in direct terms, instructs us to *pose;* as if nature must accept or even recognize the purposes of man, when they are of such a kind that they originate not from induction, but are propagated from man to man, like beliefs.

Nature doubtless performs all those cures for which a great variety of drugs are recommended by as many independent persons. This principle is opposed to the propagation view just alluded to, concedes the most candor and spirit of originality to each proposer of a remedy; but there remains the privilege of the impartial judge to offset one proposer against another, one set against another, while the cases of recovery from no drug at all will not escape notice. Says Prof. Bennett, of Edinburgh, "he had tried everything—there was no drug he had not tried—in rheumatism, and had found them all pretty much alike. He had tried nothing, and the result had been the same." (Braithwaite, Part liv. p. 40.) "The alkaline treatment had seemed to shorten the disease a little." (*Op. cit.*) The general impression derived from several authorities seems to be, that rheumatism will last about six weeks, and not much longer, and then terminate. May it not terminate in health, without being "cured" at all? There is reason to believe that the word *cure* would not be heard among or during the events of disease, were it not for human pain and anxieties; it signifies nothing more than, "*look out*," or, in paraphrase, see what one man can do for another to avert or relieve suffering. Curator and Trustee have become synonymous in literary use. The physician then is the trustee of disease. Does he need to resort to anything that is a "drug" in the market? The word *medicine* has by use come to mean a preparation to be swallowed for the arrest of disease, among all the Latin nations. Whether its root is Medium, a means (as that of re-medy is), or MEDI, the nation, the Medes, and thence signifies the magic art, the one great thing derived from the Medes (which was the *anima* of Stähl, were fanciful names given to the vital force which in their shadowy knowledge they conceived to be a distinct spirit in the human organization, that controlled all biological activity, normal and morbid.

These names of leading men embrace representatives of every school, sect and division of medicine, from the time of "The Old Man of Cos," to that of the great Scotch genius who wrote the "First Lines of the Practice of Physic."

And now comes Cullen with his *vis medicatrix naturæ*, which has been the polar star guiding all true and rational therapeutics from the time of its proclamation to this day. The principle so named by Cullen "is not supposed to be anything superadded to the body, but one of the powers or properties necessary to its constitution as a living system, and the existence of which is recognized by its effects." "The school of Cos, the Hippocratists, the Animists, the Vitalists, had already proclaimed this truth; but they had all supposed the existence of a principle distinct from the organs," and this constitutes the difference between the present doctrine of the *vis medicatrix naturæ* and the idea of an interior governing and preservative power, presented under multiplied names and phases, that runs through all medical history antedating the advent of Cullen.

The antagonistic idea, that nature in disease is to be opposed, her course arrested and her purpose thwarted, though frequently presented and sometimes taken quick root and had rapid growth, has never been enduring, but, on the contrary, has soon faded, perished and been forgotten, except as a historical fact. Even the Brunonian theory, which was conceived in opposition to, and was cotemporary with, the doctrine of Cullen, and which was so attractive and alluring as to captivate many minds, and even control national schools, is gone, having maintained itself but for a day, as it were, and is now known only as an integer in that vast

1. The Generative.
2. The Conservative.
3. The Temperative.
4. The Assimilative.
5. The Formative.
6. The Restorative.
7. The Motive.
8. The Sensitive.
9. The Appetitive.
10. The Sympathetic.

It is quite difficult to conceive that any person able to comprehend the logic in which this profound author sets them forth, should deny them as principles in all known animal life, and indeed in vegetable life. These principles are to be considered and accepted apart from tissues and particular organs. They are all operative (so far as one man is an exponent of his race), in a man who is never sick, or the subject of any disease. It will be observed he has omitted any principle called *medicative*, which indeed he should do; men have lived to old age and have died, and have not known any sickness. We should not suppose such an one destitute of the Principles of Life! in need of the vis medicatrix naturæ. The association, by selection of several of these principles enumerated, can extemporize such a vis when occasion arrives that should render it necessary; more exactly, however, these principles are all the time in associated and harmonious action in health, and for that reason disease does not manifest itself, being put down by early, minute and diffused action (so far as our observation is concerned), while any would-be disease is incipient, nascent. Had we never a prism we should not recognize sunlight as containing a color called green. The feeble constitution is the prism that allows disease to be visible or real.

The Conservative Principle is that power by which the living body is prevented from running into putrefaction. The Formative Principle is that "by virtue of which, bone, cartilage, muscle, membrane, and every other form of organized animal substance is created at the very point of time and space in which this conversion and accretion is called by drawing out the blood. In pathology the particular cause which gives rise to inflammation, differs from the material instrument which inflicts a wound, in the manner in which it addresses our senses, being subtle, fugitive and obscure, not material like an axe. Must it therefore be regarded as less a "restorative principle"? We might be more inclined to think so, if we could perceive that which corresponds with the wound in surgery, as the excitant. The human system being exposed to severe cold, or to the inspiration of cold air, is some how impressed, enters into a state of incipient collapse or depression—which on the supposition of that exposure being permanent, requires the same rally of the capillary circulation of blood in the lungs, as that which occurs in the face on exposure to cold in winter—this rally, this exalted innervation, conservative of the general welfare, occurs, only to be called a bronchitis, a tonsillitis, a catarrh, or a pneumonia. It might be the worse for mankind, if these "diseases" were not possible.

A local circumscribed inflammation is one of the most persistent of *purposes*. It is not absolutely certain that it is much, if any, affected by general bloodletting; and as for local bleeding it does not appear that the minute blood-vessels (being entirely controlled by the local innervation) will allow of the flow of their contained blood. Pathologists are far from being agreed on the status of the blood in such case, as respects motion, whether it is increased beyond what is natural, or whether it is essentially arrested, in the minute vessels. There is no room for disputing that it is accelerated in the distant, large, approaching vessels.

Refrigerating external applications, while administering relief from pain, may nevertheless prolong the work of an inflammation.

The part performed by nature in resisting poison, appears wholly in conservation of a healthy organism. A poison gains access to the place of the reactionary irritation by purely physical laws; it is the province of reason to prevent this. A miasmatic air is inspired, poisons swallowed, or a virus is absorbed by a cut, abraded, or tender mucous surface; the insensitive epithelium cannot resist; the innervation of a deeper part must engage it by contact: this is necessary infection. An irritation (from ira—anger, as if nature were angry) and a restricted inflammation follow. In the case of chancre, the hardened base seems to be designed by nature to wall out the poison from further being absorbed. In this prison house, is the virus confined; not indeed in a mere physical sense; the natural tissue is indeed inflamed, but in depression, in loss of power, in an apoplectic condition. The soft surface remains entire, becomes tumid, and discharges a clear ichorous fluid. Escharotics applied, bring away a mere slough of the surface; after which the chancre remains as before. Nature is engaging the poison with a more effective power deeper down. The cure begins at the base, seeming to ignore both topical applications on the surface, and drug-medication. The case occurs, however, exceptional to the general design of nature, in which the virus becomes absorbed into the system, where it is probable, in the majority of cases of which we know but little, it is decomposed after a proper lapse of time. A chancre is called a disease to be got rid of; it is a temporary vestibule which nature erects where she may examine the credentials, and even castigate, at the expense of injury to the floor and drapery, a peculiar kind of applicants for admittance to the *temple* of the body.

Why the syphilitic virus reproduces itself; that is, why the vital power of the system permits this, is a vexatious question: but the same principle runs through all the zymoses—the small-pox, the kine-pox, rabies, scarlatina, &c. &c., and is explicable, if at all, on peculiar principles.

of four ounces of whiskey, retained in the stomach, ought to be a fatal quantity to a man; though one habituated to its use takes this amount with apparent impunity, and even twice or thrice that amount. The same is true in regard to the use of opium, arsenic, wourali or any other poison. All noxious influences that tend to cause disease, are doubtless met in the same way by the natural forces, and for a long time cause no disease with some "constitutions"—this constitution is not exactly a "frame" which might be "iron," *but a working set of live forces*—and after they have given rise to marked disease of the kind called chronic, a change of locality alone, as from the workshop to the open air, gives the natural forces all the advantage possible, and the "liver complaint" "accompanied with dyspepsia," gradually disappears;—gradually here means one or several months.

When what is called good health becomes habitual with a person—becomes his prevailing condition for a protracted course of time—disease on its occasional occurrence easily yields to the stronger tendency of the habit of health. The well period of life projects itself forward so to speak into the brief diseased period, there to re-assert itself, and contest the ground with the disease. This may be a mere paraphrase of what is called the constitution. Health is the more normal condition; disease, the abnormal; since both occur in nature, both are natural. Organism is quiescent, balanced, satisfied in health; the opposite is disease. Nature seeks repose, and has a method of acting in order to bring it about.

A great deal is said about "assisting nature" in disease; what does it mean? What it is in surgery is too apparent to require remark. What it is physiologically, and when called relief, and when it impresses its indication by inward desires or promptings, each individual knows for himself, and through the social principle is able to carry out in others when the service rendered is mechanical in execution. What it is therapeutically is also often evident, when a mechanical act of the organism can effect the entire relief. Thus vomiting, intimated first by nausea, is promoted by position of the body, by voluntary action of the abdominal muscles, but eminently by what is known as an emetic. In a case of dyspepsia, when most articles of food provoked vomiting, with difficulty and delay, and considerable suffering, a few grains of ipecacuanha "worked like a charm" in rendering the operation *easy*, *thorough*, and *quick*. The same is true of cathartics, when really needed for the dislodgment of ingesta.

Our knowledge of the utility of a few drugs, related to the digestive function and period in their results, is much the most perfect and satisfactory of all our knowledge of drug-administration. The digestive function is addressed. Art supplements nature after she, relying upon judgment and appetite in the selection of it, may have made a mistake in receiving it. We eat to-day that which, to-morrow, will be in the digestive canal in whole or in part. But what our circumstances will be to-morrow, moral, mental, emotional, and physical, we know not; to-day may be an incubating day of a fever, but to-morrow the entire alvine canal shall pass suddenly out of all relationship to any conceivable nutrition, or assimilation of foreign matter, to the system. Here is a germ of thought in justification of spontaneous diarrhœa and vomitings, in fever, which need not and indeed cannot be interfered with. "We used to employ all manner of astringents and narcotics in the diarrhœas of typhoid fever; but now we use none," says an English writer. Whence it appears nature possesses a resource of her own by which she can correct the erroneous prediction of appetite.

That part is performed by nature in the cure of disease the origin and source of propagation of the most serious class of diseases that afflict man—malarious and contagious diseases. The world's proper great inorganic agencies are kindly pent up in the bowels of the earth, and are made known to us principally by earthquakes and volcanoes. Those are her severe and impracticable agencies; her milder are an inexhaustible supply of pure atmosphere enveloping the whole earth, pervaded by day by the generous sunlight which has "healing in its wings;" a solid earth, of rock and soil, which knows no "bogs and fens" and marshes; and a broad expanse of chlorinated waters. The Pontine Marshes and the Fenny Districts belong to that Intermediate Nature; the intellect of man, subduing by drainage, should convert them from a nursery of death to a rich garden of vegetation and life. Not the planet, nor the air, nor the waters are quiescent. All natures are instinct with their motions; the animate, with motions and life. Man cannot be corporeally symmetrical without muscular motion. Without intellect developed, he cannot enter into and become a part of the great health-harmonies of his proper being. It may yet be discovered or learned that the proper cure of disease consists in waiting upon and soliciting for their normal use, the common organs and faculties of the suffering man.

The history of medicine does not present us with a very flattering exhibition of correct research regarding the nature of disease, or of a wise and consistent use of remedial measures. But the record is as consistent and rational as that of any science of a nature that could entitle it to a comparison. Certain leaders were recognized as controlling authorities in opinion and practice. Perhaps it is so now, and by a necessity of human constitution must ever be so. We have not space to reproduce this history even by abstract. It belongs to the past; useful now only as a warning. Let it be agreed now that whatever the treatment of disease in the past centuries may have been, the genius of the age demands that the subject be looked at from an original standpoint, divested of all false presumptions, which like barnacles have clung to it, and biassed its rational progress; disease was an enemy in possession (a demon if the disease were mental), that must be attacked and dislodged. "As to nature," said even the distinguished Dr. Rush, "I would treat it in a sick chamber as I would a squalling cat—open the door and drive it out." Must we believe that his idea of nature partook of the theological cast of some classes in the last century, it being something to be hated and cast out? Nature was made antithetical to grace, which signified that which is lovely, which saves, and is of good report. Nature was corrupt, of downward and destroying tendency. It was less a medical word than a theological; peculiar views of theology produced a more lasting impression upon the mind of the community, and tinctured all language that might be common between itself and general science. It was different in this regard, in classical antiquity, from which we derive, with correct and honorable associations, the word, physician (from φύσις, nature), and the record and the fame of Hippocrates, who cured diseases according to nature. The physician of the Greeks, however, was the ἰατϱὸς, stated by James Donnegan, M.D., in his Lexicons to be so named from the practice of applying warm emollient dressings for the cure of disease; the original clue being surgical applications, and in no respect pharmacal preparations or drugs to be swallowed; which were intermingled with magic and incantations, and administered by a numerous and low class of people. The germinal idea of the purpose of drugs among the Greeks was that of exciting a certain phrenzy-like intoxication, evidently a positive physiological effect, an unnatural state, a state of delirium.

If it were possible to enter upon the study of the proper [illegible] original standpoint the ques- [illegible] passages would scarcely come up [illegible] are proper purgatives, though it has been maintained that the specific virtues usually attributed to them, are obtained by virtue of their acting as such.

Some of the most explicit and satisfactory results among all the methods of assisting nature in disease, consist in due regulation of the digestive function, by the two methods of care over the ingesta of dietetic substances, and over the retention of the contents of the digestive canal. In accomplishing this regulation by means of drugs, we are only doing vicariously what nature ordinarily would do (and perhaps generally does do after a time) if the patient were not precluded from taking exercise, were not restricted in diet, by necessities not easily controlled. Nature indeed by her own inward promptings will in many cases suggest the just diet, which the arts or resources of the particular patient cannot obtain; nature being stronger in suggestions upon the intellect than in execution through the means and appliances of the patient; the diet being medicative as well as alimentive.

A word in regard to what are called strength and weakness in health and disease. It is not difficult to present certain paradoxes involving these rather undefined words. A man, by a severely abstemious diet, may render himself exceedingly weak as respects what Bichat called the animal life. He may become reduced to a recumbent posture; this happens for a cause; let it be for dyspepsia. Such a case associated with and apparently dependent on obstinate constipation, but in reality on change of climate, presented itself to the notice of the writer. Nothing nutritive could be retained; everything vomited for several days; pills intended to be purgative were thrown up as soon as dissolved in the stomach; enemata could do nothing—if weak, brought nothing away—if irritating, could not be retained. No suffering whatever if no nutriment was taken; severe distress lasting twenty-four hours, and no sleep, on swallowing two ounces of gruel which happened to be retained. Prescription, absolute quietude, no attempt at nutrition or purgation—may take hourly a few drops of the juice of a sweet orange. Patient at this stage unable to stand from inanition. No necessity for standing. Patient a man in middle life, always in previous good health; but now, for the first time, in a Southern State. Result—in about three days after this prescription, nature, seemingly conscious of the situation, rallied in a marvellous degree, in respect to the function of the stomach, which then received everything it was thought prudent to offer. Purgative delayed, for two days, and then worked kindly. Remark—the stomach then had relatively more power than in usual health; it seemed to have laid a levy upon all the organic powers of the system, and to have collected its exactions. Here was protracted and pure rest. We should not assume gratuitously that there must be an increasing weakness of every function on the continuance of a condition that causes the muscular strength to decrease. The mind grows vivid and powerful, relative to its usual power, under abstinence from food. Some experimenter, mentioned in Braithwaite, has shown that a fasting dog resists the poison of wourali, much longer than the well-fed dog. The suspension of general nutrition during the progress of a continued fever, may enable nature to rally in conservation of organic life in a manner unknown to good health. These considerations make against the soundness of the common proverb—approach contagious diseases on a full stomach; for the reason that with an empty stomach absorption is much more active. Why should the proverb not be reversed—approach contagion on an empty stomach, for the resisting power of the system is much greater, the organic forces being released from digestion in a great measure; the Assimilative released in part; also the Conservative force in part, that which Blane defines to be directed against the chemical tendencies of the mass of peculiar matter which composes the system—tendencies which are obeyed after death: it being understood in explanation that the circulating mass of the blood and the fluids is that which is most ready, of all parts of the body, to obey the laws of chemical affinity. When this mass is at its minimum, nature may accumulate strength from that unexpended power, and this occurs in severe abstinence.

This law of the transfer, suspension and accumulation of special forces, is one worthy of special study in understanding the methods of nature in disease. We may put it down as a known principle that the organ or function (essential to life) most weak and perverted or embarrassed, will gain power relatively to the other parts of the system, by time and rest. Nature supplies the want or disability of one organ or function by another, instances of which are too well known that it should be necessary to adduce them; but we should observe that nature may require time to set up these substituted actions.

We have in the foregoing pages adverted to the great physiological purposes of our nature, essential to our very being; not simply to our material existence, but to our position as at the head of all known animated material beings, as intellectual, moral, beautiful, symmetrical, uniform in scale of size as respects companions, uniform in respect to a certain range of endowments—and have found a law that a man shall exist, that he shall have a love of life and of that of his race, and that he shall avoid danger instinctively. We have found, or may find, wonderful adaptation of means to ends, and we understand many of them intimately when the substances, and the distances, and the purposes can be guaged by the senses, as all the late stages of gestation, parturition, lactation, double dentition, outward growth. We have found injuries dition if it should be administered, at the most favorable time, to the maternal individual, or any body else. In addition to which proposed drug-medication, or instead of it, let any other human instrumentality be tried, and we have no part performed by man as a cure. Is a hare-lip the result of restricted nutrition? No evidence of that. It is a failure of nature to unite the parts which seem complete in themselves, on the median line. It is a want of vascular anastomosis between the parts in the action of the Formative Principle.

The human race, as well as all other races of animals, would become extinct without some tolerable well condition of body and mind (tolerable health was an aggregation of words avoided here, as contradictory, although in popular use). Nature jealously guards against the extinction of a race of animals from the earth. It is not known that disease was the cause of the extinction of the great monsters of some past epochs of the earth's duration, nor is it known that the human inhabitant of the earth is deteriorating; but rather the reverse, in the most cultivated races. It is held by some persons that the pestilences of every form are means designed to keep the multiplication of our race in check—an opinion difficult to adopt, as it would be incompatible with a host of facts. A continent may become overstocked with inhabitants and may become submerged in water, in whole or in part, and a new one, ready for inhabitants, arise from the bed of the ocean, as has happened in the past. There are precedents for this; but whether the submerged continent has been stocked with human inhabitants or not, cannot be told. The islands of Oceanica may be but the summits of a departed continent.

In the earlier pages of this essay, it was remarked that it is a difficult matter to define nature, as a word. It is a popular impression that the Esquimaux, the Hottentots, the squalid, ignorant and degraded races, are living a life nearest to Nature, because they have done so little in the arts of cultivated life. But man's art is no more opposed to nature than a bird's art, or a bee's art, or a beaver's. No other reason than the great variety, distinct character and high achievement of man's works, causes us to group them in a mass and hold them as Art in an easy antithesis to all other things included, for a logical convenience, under the name of Nature. All human arts are but machinery for man's happiness, and are as naturally related to man, as the honey and the comb to the bee. The cultivation which man bestows upon that portion of his physical well-being that secures him health, calls into requisition many processes of art, and much intellectual exertion. Here come in all the cares over sickness, whether exercised by the cook, the nurse, the house-builder or the scavenger. The reduction of these cares to a science and an art combined, brings us to the recognition of the province and duties of the physician. So long as the physician *feels* that he can control many of the conditions that affect the sick for weal or for woe, he must realize that he has a science and an art. The word nature in our theme must not be allowed to act as a stumbling block, since by a mere circumlocution we may easily eliminate it, with the retention of all our subject matter. We do not so much wish to know what nature may do in a certain case, as to know what the result will be if the physician does or orders certain things or neglects or omits them; the idea of omission in this use embodying no meanings founded on mere traditions, past practices or past presumptions. As before remarked, the catalogue of things omitted might be enlarged without limit, in describing a case of sickness, exactly well treated, so far as human knowledge can trace results as dependent on certain antecedents; that is, so far as human science can interpose known instrumentalipresumptuous and irrational, and impossible in the execution. Man cannot produce, manufacture or create a disease "to order," nor in any business sense of the word "go right to work" at curing one. "Something must be done, and done now," is the popular exclamation in a given emergency of serious disease, or supposed emergency. Responsive to this popular demand, the physician, in years that have past, did gird on his armor and do that which appeared heroic. The bystanders, totally without any rational principle as a guide, commit any extravagance of anachronism in watching if the patient is better or worse, as dependent on the means used for relief.

Experience in regard to the use of means that tend to the restoration of health, or recovery from a state of disease, is not derived from experiments, but rather from observation. Observation may take cognizance of a multitude of conditions which have no relation to man's means of making trials. The climate is beyond the physician's control and is not subject to his order. The alternative of sending a patient to a selected climate, with the implied intention that all other circumstances, moral, social, or emotional, shall remain unaffected by the patient's journeying, is an hypothesis that cannot be fulfilled. The anxieties of travel are great, and must always enter into the estimate of its propriety. It is possible that other influences than climate do more than climate, particularly the engagements of the mind, in effecting the recovery in some cases of patients travelling. Observation is comprehensive, is of full scope; trial or experiment is narrow, exclusive, elusive, because it is held to be specific when it cannot be; suits the narrow and illiberal mind that forms hasty conclusions. With such a mind the administration of a drug, addressed to nothing but the disease, followed by benefit or recovery after a lapse of time, is both a trial and a conclusion that cannot be resisted, that the drug performs the cure. Without observation of one's own consciousness or that of others, or of appearances, it could not be known that a man could be sick, or being sick, that he could ever recover. What we should suppose would be true in regard to a first known disease, is of no account. The patient himself undergoing a disease can scarcely be said to be "trying" the disease, for what conditions does he order in inducing it? Or with what propriety or success could he on trying a fever for a few hours, and not liking it, propose to abandon it and try it no longer? Whence comes the logical process by which the patient (or some one else in his stead), on finding he cannot abandon his fever at will, proposes (as a substitute) to swallow something, instead of shaking a stick; saying presto, change; or coaxing a dog to bark; or making hideous yells, which latter, some people have *practised*. Trials like these, with the *time element* and the patience element incorporated, might succeed; but it would remain for enlightened observation to discard everything but the thing swallowed, and perhaps in the process of time to esteem this of unimportant moment. Enlightened observation has however taught us, as certainly as anything can be taught or acquired, that certain substances swallowed will relieve pain, procure sleep and calm irritation, during a period of time equal to the digestive period. It has also taught us that certain substances swallowed will evacuate the alimentary canal of ingesta and retained secretions, to the great advantage of the sick and complaining, when judiciously administered, and supplement diet when that is or may have been improper in quality, quantity or mode of preparation, or, when eaten yesterday, its presence to-day is incompatible with the emotions or exposures of to-day, or with the rapidly maturing incubation of zymotic disease.

Nature, however, possesses the lethific power of sleep bestowed alike upon the sick and the well, at stated periods.

That must be severe pain that is not statedly lulled by its insidious approaches and subduing influence. But the medical art can and often must supplement its deficiencies and failures. This is necessary in many cases of neuralgic and other painful diseases, that life may be rendered tolerable. Its exact bearing upon the cure of disease is a somewhat distinct consideration, if we define cure, as popularly understood, to be artificial means of bringing disease to a termination in health, so *much* sooner than would otherwise occur, that those means could not be mistaken as having been real in efficiency. It is, however, more important that the physician should know his duty (to render life tolerable), rather than to study methods of abruptly terminating a disease by the administration of drugs. In surgical cases it becomes of first class importance to know and apply the resources of art, for terminating suffering expeditiously.

Man and his arts being a part of nature, human arts become incorporated or adopted into nature, either as nugatory, or as beneficial or deleterious to his health. Every human act must be arranged under one of these three heads, more specifically every act done that affects a person sick must be ranged under these three heads. The first difficulty next encountered is in judging what acts affect a sick person. Observation has shown quite distinctly what acts are probably injurious. In this arrangement, acts of omission, as the non-providing suitable accommodations, ventilation, cleanliness, &c., become positive in their results. Whatever can be done to benefit the sick and is known, is a subject of knowledge called the science or art of Medicine. As a next remark, it is probable that a special class of persons is necessary for the acquisition and use of this knowledge. Who, unless a special class, would have investigated the nature of the trichinæ spiralis, and its habitation, and thus have solved problems of intense interest to the community? Hundreds upon hundreds of such questions as this, which it is not necessary for the purposes of the present writing to ask, or to answer, show the need of a class of persons who shall devote themselves to obtaining a knowledge of disease, and of the human system, its seat; and of the world of multiform matter, its surroundings. No one can rationally question the need of a class of persons to be devoted to these pursuits. Ah! but they have drugged too indiscriminately and too much, says one. Perhaps they have so done, acceding to the demands of the public. Medical instruction has seemed forced to put on positive airs of asserting particular remedies for disease, in order to make the position of teacher seem respectable and abounding in knowledge. Nobody ever gets a credit for doubting. The bystander puts every thing of doubt down on the account of ignorance, although the doubter may take every matter of deliberation before the severer tribunal of a deep consciousness.

The writer believes that in New England the period of polypharmacy has passed by, that the more rational methods of administering remedies in very restricted amounts has become quite well established. The difficulty abides in making the public fully understand that this change is fully inaugurated, and in inducing it to abandon the *names of systems.* The writer has abandoned them in this dissertation. Very nearly all of them have passed away.

The writer is reminded that the pages of this writing must reach a termination. He has striven to beat a path of thought, though in a vague and disconnected manner, as much as possible away from that of making comment and review of others. He has presented the round of suggestions that have occurred to his own reflection; in a manner probably too hasty, for fear that prolixity would be tedious to the reader.

The vein of scepticism that has seemed to crop out in these pages, regarding the virtues of drug-medication, has been in part affected, with a view to re-produce the idea of medication from a primitive stand-point. The theme has been regarded as a debate, and not as a ground for a declaration of mere beliefs, or mere doubts. The views taken in these pages, therefore, may not properly express the writer's status, or at least make that known to the reader. An essay must be brief; there is no spoken voice executing its inexpressive words with intonations and meaning; there is no cross-examination by the reader, or opportunity for pointed rejoinder by the writer. These pages have been written, perhaps, with a bias, dependent on nursing too much, a controlling idea.

The point, which, more than any other, it has been considered desirable fully to discuss, has been—the functional relationship of the general drug to the organ or stomach in which it may be put, during the digestive period, and its sequel; what cumulativeness of drug-effect is, as developed by repetition and as antagonized by digestive efforts, and their cumulativeness. Certain drugs have been shown to be foreign substances to any known want in the normal assimilations of the system. All drug-effects of which we can take satisfactory cognizance, occur during the digestive period; those which are supposed to be cumulative by successive administrations, which some certainly are, may be digested after a time by preparation of the organs for that purpose, or be carried off by elimination when their chemical simplicity shows digestion to be an absurdity to think of. The moment the *time element* is worked into the case, confusion of the subjects of thought ensues. There can be no doubt of the general antagonism of what is called the active drug to the healthy organs. It is a severe stretch of presumption to suppose that man can succeed in hitting upon the discovery of undoubted beneficial relationship of the active drug to an enfeebled or diseased organism or condition; because in the primitive intention the trial must be made utterly at random from many hundreds of substances (why not many thousands?) to select from, the administration to be in "doses" that can be tolerated, through a period of time, often amounting to months. It is hinted, however, that certain indications point out when the system is "brought under the influence" of drugs whose action is known, instanced in opium, digitalis, quinine, &c.; an "influence" indeed allied in nature not to the cure desired, but to the amount of risk we are to be supposed willing to run.

If we would read the indications with unaffected simplicity, that are supposed to point out when the system has been brought under the influence of digitalis or strychnia administered to the digestive function, we ought to infer, it would appear, that the drug is out of place, for what else do dimness of vision, vertigo, tightness with dull pain in the head, irritation of the pharynx and œsophagus, nausea, vomiting and purging, seem to say? results common to so many drugs, that nature has no other way to show its general abhorrence of them. It is nature's gesture of displeasure, and effort at their ejection by every passage or emunctory; and in part by digestion, for by lapse of time the powers of the stomach become educated to disposing of them. The muscles of the arm or leg are no more truly developed into capacity to perform what, within reason, may be demanded of them, than the mucous and muscular and secretory tissues of the stomach. The stomach of the habitual inebriate becomes hypertrophied in its tissues and capable of vastly increased secretions, its circulatory vessels also increased in size.

Wonderful must be the power of nature if she can dispose of a drug always "pushed" theoretically till it shall be felt, and of a concurrent disease also, for the removal of which the drug was administered, under the régime of practice that prevailed in heroic times but has passed away.

A well person might have tolerated something of this old form of medication, but the sick and enfeebled, for whom it was so kindly designed, could hardly be said to tolerate it, as well. Whatever wellness and strength they had, were to bear it and did bear it; although it was squared off, in the thought of the administrator, with just the disease which it was to "grapple" with or "encounter," or at least to soothe, or to be limited to, or confined with.

Mention has been made in the foregoing pages of the improbability that any person could by artifice live well or sick for three or four months under influences that would not materially change in their own nature—enough so to prove medicative, if, indeed, it is useful to use such a word, in a silent and unseen manner to the sick; as truly as morbific to the well; making just the allowance for the relative frequency of certain periods of disease. There are peculiar powers in the organic life of the tissues active at a remove of time and place from our human, professional power of watching them, or the patient's power of watching them, who seems to be conscious simply of "feeling better" or "not so well," at peculiarly restricted times, from fancied or whimsical reasons. Much of changed action, directed toward restoration, has little or nothing to do with the patient's feelings or means of knowing it by his sensations. As a little instance, a man of full health and power felt, by the touch of his finger, and concurrently saw by the looking-glass, a small tumor, attaining ultimately about the size of a chestnut, growing subcutaneously upon the centre of his forehead for the space of eight months. He recollected wearing, a few weeks previous to perceiving it, a stiff hat for a day, a size too small for him. Nothing was done for it; it gradually disappeared as it came during the succeeding four months. It was a mere hypertrophy of fibrous and cellular tissue, excited into development by the stimulus mentioned; it subsided by the decay of that stimulus. Unusual actions, local or general, their stimulus removed (which may often be presumed to be temporary, whether distinctly known or not), gravitate into the normal or usual condition. Health is the normal state; disease is a possible state.

Time is only nature's chance to be, or to act. Some theologians tell us, referring to the human character, that it is greater "to be" than "to do," for the reason possibly that *doing* is temporary, subservient to policy and motive, while *being* is not liable to any such suspicion whatever. What nature *is*, in successive stages of time, includes all she does. What man, the "servant and interpreter of nature," may be able to recognize or describe as the *performance* of nature, is a distinct thing. His power of description for apprehension by other minds is more feeble than his power of observation, itself very limited. The insignificant human parasite may have an opportunity for observing human diseases that man cannot have; it may say "quorum pars fui," after the event.

Any increased confidence in nature the candid physician may find himself able to attain, and of which he may desire to avail himself in responsible emergencies, he is justified in incorporating as an indistinguishable part of himself and of his acts. The alliance he forms with her, the strength of his confidence in her purpose as indicated in a certain time required for her perfect work, are matters for his own inward consciousness. He may find it difficult to explain to his patient, what with so much difficulty he learns himself. His confidence in nature, inwrapt in his own watchfulness and personal character, he cannot hope to succeed in analyzing and portraying to the sufferer. He may do that which is *merely symbolic of virtue passing out of him,* embodied in visible acts, and tangible administrations of many articles to be swallowed, that shall prove really comforting, and to be sometimes hourly repeated. How apt we are to forget the comforts of the hour to be found in mild stomachics, in being so essential as they really are.

With increase of knowledge of the human constitution and of the laws of its well being, there must be an increased confidence in law; and in the law of relation of human acts to human welfare, there must become an increased confidence in Medicine as the embodiment of the knowledge of those laws. Once in a while a logical elimination takes place in the relations of its reasonings and its practices, which certainly must be regarded as a deliverance, a relief to the devotees of this science; for as soon as non-essentials become well marked, the more easy it remains to identify essentials. If the possibility of "attacking disease" and the need of doing it withdraw together from our field of view, our vision must become the clearer. It may be that we are to make a confidant of disease, rather than an enemy. It sometimes requires a diseased tissue to demonstrate the structure of normal tissue. It is doubtless better for man that it is possible for him to be sick than if it were impossible; for a good portion of sickness itself may be a process of recovery, not indeed from disease as we happen to name it, but from a certain something that we might name, or, at least, must conceive to exist. Perhaps it requires a diseased life to best make known to man life without disease; and this accords with what we hear alleged, that medicine as a science (pathology) is the father of our best knowledge of life (physiology). The straight path of a true life must recognize the region through which it runs.

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on or before the date last stamped below.